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AS a measure of stability in railway values, in spite of adverse political and other influences, the market prices of 20 active railway common stocks are suggestive. Taking the middle of the present month and the approximate closing average price, 123, as the measure and standard, one finds a rise of 10 points as compared with a year ago. The highest price of the last 4½ years—December, 1906—shows an average price only 15 points higher; and the lowest price—81—of the post-panic period that began in October of 1907, is 42 points lower. The standard price of 123 compares with 126, the highest price of 1910, with 134, the highest price of 1909, with 121, the highest price of 1908, and with 91, the highest price in 1907, after the October panic of that year. Allowances must, of course, be made in any inferences based on average prices. A sudden rise, like that of Canadian Pacific during the present year tends to disturb the average just as at an earlier period there were such rises as took place in Union Pacific and Reading. But there have been partly offsetting depressions, such as those in New Haven, Pennsylvania and New York Central, and during the period under consideration two forces—rise of wages and railway baiting—have been almost continuously acute as "bear" influences. Were the quoted prices merely speculative they would not be worth citing. But through the speculative ups and downs there persists the investment demand and price as a kind of ballast outstaying the chills and fever of stock gambling. In the stability of railway prices it shows that confidence in the ultimate value of the railway which has survived remarkably through a long period of cloudy railway weather.

AFTER compelling an extra session of Congress, the Canadian reciprocity agreement has finally passed the Senate as it might and should have done five months or more ago. Interest in it now shifts to Ottawa and to the question whether the Conservative opposition will be able to force a general election and referendum. While railway interests in this country have generally been quiet on the subject of reciprocity during the protracted hearings, they have, so far as heard from, been in favor of the agreement. The railways have rested on that major premise which has been accepted by the country as a whole—namely, that the positive benefits of the many overcast the very hypothetical injuries to the few, and that transportation thrives with general commerce and diminishes with commercial obstruction. The specific changes of tariff duties when re-studied in the agreement do not modify appreciably the theory that it is in the railway interest. Farm stuffs, vegetables, rough lumber and fish become free; while our mechanical products going to Canada are lowered in tariff rates. Access to Canadian forests reduces the swift consumption of our own; and the 10 per cent. reduction to the free list of railway ties and the free listing of creosoted timber suggests an important direction of railway economy. In the railways' position as consumers, the prospective readjustment of lumber prices is probably the most vital feature of the agreement.

HOW both absolutely and relatively railway taxes are running up is shown strikingly by the figures of Poor's Manual of Railroads for 1911, covering the comparative returns for 1909 and 1910. Assets of the railways of the United States increased for 1910 by a little more than 7 per cent.; gross earnings 11.59 per cent.; and net earnings 7.85 per cent. In vivid contrast, taxes increased from $90,790,949 to $107,862,419, or nearly 19 per cent. Taxes increased nearly 3 times as fast as assets and somewhat less than 2½ times as fast as net earnings. But in reckoning such taxes only those paid by the railway corporations directly are counted in. Not computed and not to be computed in any approximate figures are those paid by the bond holder and stock owner as an individual or trustee. The double taxation thus levied is notorious, the bond holder, for example, in one state often being taxed on securities on which the corporation has paid the full tax in another commonwealth; and to this breach of the taxation equities has been added, of late years, the large transfer inheritance taxes still increasing in many states, though just modified in New York. These inheritance taxes, as Governor Dix of New York recently said, may in some cases mean triple taxation and, in the case of some collateral legacies, run up to almost confiscation ratios. What is the real railway securities tax, corporate and private, and what the rate of increase, would be startling could they be joined and computed. That the individual can and often does dodge the legacy tax by *ante mortem* distribution is hardly consolatory to the railway corporation which lives on and must show its hand each year.

THE high character of Governor Baldwin, of Connecticut, who has been chief justice of the supreme court of that state, and who has a national reputation as a legal authority, has given a special interest to his three appointments to the new Connecticut public utilities commission with its greatly enlarged powers, inclusive of steam roads and street railways. He has appointed the three members of the railway commission whose names he had sent to the state senate earlier in the legislative session and it must be confessed that as appointments they are not profoundly satisfactory. One is a municipal civil engineer not very well known; the second, a successful peach grower, active in the past in the state grange; and the third, a county coroner, a lawyer, quite respectable, but not ranking among the best lawyers of his locality. All three may be described as without technical training for their places, and there is a mild savor of politics in their appointment. On the other hand, it is to be said that the governor had offered one of the original appointments to a leading civil engineer of the state who had refused the place; that the new commission shines by contrast with the partisan politicians who brought the old commission into disrepute; that there were, apparently, no candidates of high technical training for the places; and that the responsibilities of the commission under the new statute are such as to demonstrate very soon incapacity or the reverse, and in the former case the law itself with its unique "recall" feature supplies a remedy. The appointments show the difficulties under which the best appointing power may labor in lifting the personnel of a state commission.

THE PACIFIC COAST CASE DECISION.

THE decisions of the Interstate Commerce Commission in the Pacific coast rate cases, which were made public this week, and which we abstract elsewhere, are based on entirely different principles from its previous decisions in these cases. In its first decision in the Spokane case under the Hepburn Act the commission held that the earnings of the railways serving that city were excessive, and their rates unreasonable, and prescribed class rates to Spokane, which it believed would be reasonable in themselves. These rates, from the middle West at least, were those then in effect to the coast; but the commission said that it did not prescribe them to Spokane because it meant to hold that the rates to Spokane should not be higher than those to the coast, but because it believed that the existing rates to the coast would be reasonable rates per se to Spokane. Its subsequent decisions in the Spokane case and in the other Pacific coast cases, were likewise based upon the ground, that in view of the earnings of the roads their rates from the east to western intermountain points were unreasonable.

The decisions rendered this week turn, not on the excessiveness of the rates involved, but on the question of unfair discrimination. As Commissioner Prouty says in the opinion in the Spokane case, "it should be ever borne in mind that the acute complaint in this case is the discrimination and not the unreasonable rate." The commission decides that the present adjustment of rates in the West is unjustly discriminatory against the interior points as compared with points on the Pacific coast, and therefore in violation of the Interstate Commerce act as amended by the Mann-Elkins act.

The Manns-Elkin act made two changes in the fourth, or long and short haul section. The original Interstate Commerce act made it "unlawful for any common carrier to charge or receive any greater compensation in the aggregate for the transportation of passengers, or of like kind of property *under substantially similar circumstances and conditions* for a shorter than for a longer distance over the same line." The Mann-Elkins act struck out the words "under substantially similar circumstances and conditions." It also provided that when the commission authorized a railway to charge a lower rate for longer than for a shorter haul "the commission may from time to time prescribe the extent to which such designated common carrier may be relieved from the operation of this section." A number of theories have been advanced as to the meaning of Section 4, as amended. The counsel for the city of Spokane argued that by striking out the words "substantially similar circumstances and conditions," Congress had failed to lay down any rule for the guidance of the commission in permitting or forbidding disregard of the long and short haul principle; that this had rendered the provisions giving the commission discretionary authority to suspend the clause unconstitutional, because Congress cannot delegate legislative authority without laying down the rule according to which it shall be exercised; and that, these provisions of the section being thus stricken out, left it a hard and fast long and short haul clause. The theory advanced by some railway counsel has been that the only real change made in the law is, that whereas, formerly, the roads, when they believed a departure from the long and short haul principle justifiable, could, put into effect rates which were higher for longer than for shorter hauls, under the law as amended they must first get the permission of the commission. On this theory the commission must permit any departure from the long and short haul principle which would have been legal under the original act.

The commission's interpretation of the law is substantially that contended for in an article in the *Railway Age Gazette*, November 25, 1910. Commissioner Prouty says in his opinion in the Spokane opinion that if the fourth section were read by itself and taken at its literal face meaning the commission would possess unrestricted power to grant or deny any application for permission to charge more for the short than for the long haul. "So construed," he adds, "the proviso would probably be void as a delegation of legislative authority." Therefore, the commission concludes that it must seek for the rule to guide it in administering the section in other parts of the act. It finds the rule in those provisions which require rates to be reasonable and not unfairly discriminatory. As Commissioner Prouty says: "It must investigate each case, and if, after such investigation, it is of the opinion that a departure from the rule of the fourth section would not result in unreasonable rates or undue discrimination, it must permit that departure. If, upon the other hand, it is of the contrary opinion, it must refuse the permission."

But it may do something more than either refuse or grant the permission. The act as amended also authorizes it to prescribe the extent to which a common carrier may be relieved from the operation of the fourth section; in other words, to fix the *relation* which must exist between the rates for the longer and the shorter hauls. Some railway lawyers have contended that the provision conferring on the commission this authority is unconstitutional. They say that a railway has a right to charge a reasonable rate for each service that it renders; that this includes the right to fix rates which will enable it to meet water competition so long as these rates are not less than cost of the service; that it also includes the right to fix rates that are reasonable in themselves, to points where water competition is not met, and that Congress has no authority, and much less it gives the commission power, to require that the rate made where water competition is not encountered shall be fixed with reference to the rate where water competition is encountered. Naturally, the commission assumes that the provision giving it the authority to determine the extent to which the long and short haul principle shall be departed from is constitutional. It is not a court. It is an administrative body exercising certain powers delegated to it by Congress, and as the agent of Congress it is its business to carry out the will of Congress, not to say that what Congress has done is unwise or unconstitutional.

Applying its theories of law, justice, and economies, the commission in its decisions rendered this week does not prescribe any schedules of rates, but prescribes the *relations* which it believes should be established between the rates from the territory

east of St. Paul and the Missouri river to the Pacific coast and to intermediate points. It recognizes the controlling force of water competition between the Atlantic and Pacific seaboards, and therefore, holds that the railways may make rates from the Atlantic seaboard to intermediate points as much as 25 per cent. higher than those to Pacific coast terminal points. It holds, however, that the force of water competition rapidly grows less as traffic originates farther west from the Atlantic coast, and it therefore reduces step by step the differential which may be maintained between rates to the Pacific coast and to intermountain territory until it reaches St. Paul and the Missouri river, from which points it prohibits rates from being made any higher to intermediate points than to the coast. It apparently refuses to recognize any competition as justifying disregard of the fourth section except strictly transportation competition.

The effect of the commission's order obviously is to make all of the rates from all parts of the country to the western interior dependent upon the rates to the Pacific coast. If the commodity rates to the coast be left by the railways as they are now, as the commission evidently expects, then sweeping reductions in practically all of the commodity rates to the western interior must be made. This would involve the loss of millions of dollars of net revenue to the carriers. It probably would, considering them as a whole, disable them from earning the 7 per cent. on the value of their property which Judge Sanborn held is the least to which a railway can be legally restricted. And yet, even if this be the case, it is questionable if the roads can attack the decisions on the ground that they are confiscatory. For, as has already been said, the commission has not in these orders fixed rates; it has merely prescribed the *relations* that must be established between them. So far as the commodity rates are concerned, which alone are affected by these decisions, it would seem that the railways are left free to establish between them the relations the commisison prescribes either by advancing the rates to the coast or by reducing them to the interior; that if, while complying with the decision, they can in any way put their rates as a whole on a basis which will give them adequate revenues they probably cannot raise the issue of confiscation.

By directing that the rates to intermediate points from St. Paul and the Missouri river shall be made no higher than they shall be made to the coast, and that the rates from more eastern points to the intermediate western points shall not be made more than certain percentages higher than the rates to the cost, the commisison has with doubtful constitutionality sought to force on the transcontinental railways the necessity of choosing whether they will desist from meeting water competition on the coast, and thereby put themselves in a position to maintain their rates to the interior, or will continue to meet water competition on the coast, and thereby subject all of their rates to its influence. The commission refers to the fact that water competition is more potent than it has been in many years, and that with the completion of the Panama canal it will become much stronger than it is now. If the water rates do decline and the railways continue to meet them, they will, if they comply with the commission's order, have to reduce their rates to the interior proportionately; every decline in water rates would reduce not only the revenue on their business to the coast, but the revenue from all of their business.

It is quite possible that the roads might, for the present, leave their rates to the coast as they are and establish between them and the other rates the relations prescribed by the commission without being disabled from continuing to pay their present dividends. If, however, water competition increases in strength, as is now anticipated, it would seem that in the course of a few years they might have to either contest the commission's order in the courts or to adopt the policy of making a large part,, or even all, of their rates to the coast in substantial disregard of water competition. The traffic that now moves to the coast may be roughly divided into three classes. The first consists of those commodities which would move by rail in any event; the railways can, of course, make the rates on them practically what they please so long as they do not make them excessive, and therefore unlawful. The second class of commodities is composed of those which are so adapted to water transportation that they will move by water almost regardless of what rates the railways make on them; the railways might to advantage raise the rates on these commodities also, for by so doing they would not lose much revenue to the coast and would protect their revenue to the interior. The third class of commodities is composed of those that can move almost equally well by rail or by water; the railways can neither reduce the rates on them to meet water competition nor raise them in disregard to it without losing a large amount of revenue from their coast business; if, however, they fix them regardless of water competition they can protect their revenue to the intermediate points, while, if they make them so as to meet water competition they will, under the commission's order, have to adjust their rates to intermediate points correspondingly.

The whole situation is so complex that it will be no easy matter for the railway managers to decide what to do about it. A reduction of the rates to intermediate points, such as the commission desires, while it would in the immediate future greatly reduce the revenues of the roads, would tend to build up the intermountain country, where they get all the business, at the expense of the Pacific coast territory, where they have to divide the business with the boats. Some of the carriers have more promising intermountain territory than others, however, so that there are apt to be differences of opinion among them as to just what the ultimate effects of such a policy would be.

One thing, however, seems plain. The commission has made it plain that it believes the rates to the intermountain territory are excessive and unfairly discriminatory; its orders in reference to them have steadily grown more sweeping; and the roads will not gain anything from it by further postponing their decision as to whether they shall appeal to the courts or fix the rates as the commission orders. On the other hand, the protraction of the struggle postpones the day when the railways can establish satisfactory relations with the public in the intermountain territory. It would seem, therefore, that whether they are going to adopt the commission's rate theories, or appeal to the courts, the sooner they do it the better it will be.

NEW BOOKS.

Popular Law Making. A study of the origin, history and present tendency of law making by statute. By Frederic Jesup Stimson, Professor of Comparative Legislation in Harvard University. New York: Charles Scribner's Sons. Cloth, 390 pages, 6 in. x 8¾ in. Price, $2.65.

This is a very interesting book. The chapters most directly relating to railway business are those dealing with labor laws (the 11th) and with corporations and monopolies (9th and 10th); but there is much useful information all through the book. It is made up of lectures given at Harvard, and so, in many places, is more full and detailed than the busy railway officer would like to have it, but it is written in a pleasing style, often colloquial, and will be found entertaining when one is not busy. The book is primarily a compendium of facts, telling just what has been done, in a great multitude of cases, by legislatures and parliaments, but it is not without comment and philosophy; indeed the author's keenness in comment and his reasonableness and simplicity in philosophy are what make the book entertaining.

Some of the principle chapter headings are: Early English Legislation; Re-establishment of Anglo-Saxon Law; Laws Against Restraint of Trade; Other Legislation in Medieval England; American Legislation; Regulation of Rates and Prices; Labor Laws; Political Rights; Marriage and Divorce; Criminal Law and Police. The chapters on ancient English history fill up more than one-third of the book and present in readable shape a mass of facts otherwise not easily accessible.

Letters to the Editor.

THE PROCEDURE OF TECHNICAL ASSOCIATIONS.

North Egremont, Mass., July 11, 1911.

To the Editor of the Railway Age Gazette:

I have just returned to the United States from Europe. I find in your issue of July 7 an editorial on the Society for Testing Materials, and I agree entirely with the criticism therein given.*

If your influential journal would undertake to bring about a more rational method of holding congresses, conventions and meetings of various organizations in this country, you would accomplish much for the general good. I might select many examples of congresses conducted satisfactorily, but I will, as illustrating my views of correct proceedings, refer in detail to only one recent congress, and that is the International Road Congress, held in August last year in Brussels, and to be held in 1913 in London; and let me remark here that while I believe the Railway Congress has too long an interval between its congresses (five years), the custom of holding a meeting every year, as is done by the American Society for Testing Materials, is objectionable, making it impracticable to properly prepare for it.

The papers for the Road Congress were prepared many months in advance, on agreed-upon, assigned questions, translated and printed in the three languages of the congress, French, German and English, and distributed among the members of the congress in over 30 different countries of the world long in advance of the assembling of the congress. These papers were also reviewed by selected general reviewers, or reporters, each one of whom made a digest of all the papers on the subjects assigned to him, with his own observations and his own views of what the congress should adopt on each "question" as "conclusions." These general reports were also translated and printed and sent out to the entire membership, the proposition for adoption by the congress made by the general reporter being printed in italics for easy reference. The reports of the eight reporters and with conclusions on eleven questions were bound up together in a small volume, forming, as it were, the hand book of the congress for the members, all of whom had previously, at their homes, read not only the about 75 papers, but the general reports, so that it was unnecessary at the congress to read any of the papers or even the reports, only the conclusions, which were the basis of discussion. These conclusions went through the ordeal of oral discussion in each section (the congress was divided into sections) and came out of it modified, sometimes radically changed, and in some cases reformed almost entirely. They were then voted upon by the section and finally adopted by it, and later by the combined sections in a general meeting. During the discussion of each question the general reporter of it sat beside the presiding officer of the section to explain his conclusions, to uphold his own views and to assent to or dissent from the changes of ideas or form. By this method the final conclusions were crystallized and edited into final form.

Like the Railway Congress, the proceedings of each day were printed and published the following morning in a Journal, a full report of the discussion and the action of the sections being given so that the members knew what was going on in sections which they were not attending the previous day. This, by the way, is the method in general employed by the International Navigation Congress to be held at Philadelphia next June, and which also holds its congress triennially. Forty countries of the world are interested in it. The subjects to be discussed were agreed upon by the Permanent International Commission, July 31, 1910. The limit of time for receiving the papers is June this year, and I happen to know, as I have myself written and sent in a paper for this congress. Many of the papers are now in the hands of the general reporters in this country, able experts whom the United States government board having charge of the congress has carefully selected.

I write this communication hoping through you to bring about in this country a more rational method of congresses, conventions and annual meetings.

E. L. Corthell

*Mr. Corthell is a member of this society as well as of the International Association for Testing Materials; also a life member of the International Navigation Congress, the International Road Congress and a member of the Congrés du Froid, as well as a delegate to the International Railway Congress at Bern, and often of other international congresses.

THE COST OF RAIL AND WATER TRANSPORTATION.

University of Chicago, July 18, 1911.

To the Editor of the Railway Age Gazette:

In your issue of June 30 appeared a reply by S. A. Thompson to my article on the "Cost of Rail and Water Transportation" in your issue of June 2 and an editorial by yourself in answer to Mr. Thompson. If in your judgment the importance of the question under consideration merits a prolongation of the discussion I should be glad of an opportunity to say a few more words on the subject.

The purpose of my article was two-fold: To point out that the usual method employed by advocates of waterway development in proving water transportation many times cheaper than that by rail is fundamentally fallacious; and to direct attention to the fact that under the proposed method of subsidizing the waterways the burden of transportation is not in the main borne by those who enjoy the benefits of the transportation service. Your editorial calls attention to many of the fallacies in Mr. Thompson's argument, and I shall consequently confine my reply to other aspects of the case.

To my argument that unless on the waterway side of the cost equation there be included for the allowance for the expenditures made upon the highway itself by the state, and borne by the taxpayers, it cannot be contended that water transportation is cheaper than that by rail, Mr. Thompson replies that the gifts which have been made to the railways of the country should likewise be included. To this proposition I would give my unqualified assent. All the items of cost on both sides of the equation should be included. But to Mr. Thompson's further statement that it is impossible to make a comparison of the cost of rail and water transportation for the reason that it is impossible to get at the value of the gifts that have been made to the railways I cannot give assent. Granting, for the sake of the argument, that what he says be true—that we cannot ascertain the value of the gifts made to the railways, or to the waterways either, for that matter—we may still compute the relative cost of constructing a waterway and a railway over any given route at the present time, and we may ascertain thereby whether transportation by rail is, indeed, more costly than by water. Mr. Thompson cannot thus easily escape the issue, and continue to quote statistics of average rates which are based on wholly dissimilar conditions or to prove his case by referring to the prosperity of waterways before the era of modern railways.

Mr. Thompson suggests that I have given no consideration to the economic benefits in the way of general stimulus to industry which are to come from the building of canals. My reply is that such benefits can be shown to exist only in case it can be proved that water transportation, all factors considered, is cheaper than transportation by rail. In the absence of such proof these supposed benefits vanish into thin air. Mr. Thompson would prove his case by merely stating it. He assumes that water transportation is the cheaper, and thereby proves that there are general benefits accruing to the community from the lessened cost of transportation. Before the age of railways, when canals were constructed to take the place of the old stage roads, unquestioned benefits sprang from their construction. The great reductions in freight rates, amounting often to several hundred per cent., gave a remarkable stimulus to industrial development, and the

favored regions enjoyed periods of unusual prosperity. But today conditions are wholly changed. It is no longer a question of the canal against the turnpike, but it is the canal against the modern railway. Wholly ignoring these changed conditions, however, enthusiasts like Mr. Thompson dream of the departed glory of our waterways, and then fondly imagine that if we only spend enough money upon them (which expenditures are not to be counted as part of the cost of transportation) canals can become as superior to the railways as to the old-time stage roads.

The second main purpose of my article was to call attention to the point that if the government constructs a transportation agent and donates its use to the public, the cost of transportation is only partly borne by those who reap the benefit of the transportation service. The cost of construction and maintenance is borne by the taxpayers. If a state builds a highway the cost is mainly borne by the owners of property within the state, regardless of the use they make of the transportation agent. If the national government constructs the route, the cost is mainly borne by the consumers of tariff-protected commodities, regardless of their interest in transportation. But, on the other hand, if the means of transportation be privately constructed, the entire cost is paid by the shippers who make use of the transportation agent. Mr. Thompson says: "With the latter part of the above statement I must emphatically disagree." The cost of transportation, says Mr. Thompson, is only advanced by the shippers; it is ultimately paid by the consumers of the commodities transported. It would seem to follow from Mr. Thompson's disagreement that my second main point had gone by the board. I am not disposed to quibble over the question whether the shipper pays the cost ultimately; Mr. Thompson is doubtless perfectly right. But what bearing does it have on the point at issue? The point which I made remains untouched. In the one case transportation is paid for entirely by those who reap the benefit, shippers, or consumers, as you please. In the other case the larger part of the cost is borne not by the shippers or the consumers of the goods transported, but by the general taxpaying public regardless of its direct interest in transportation.

Again, Mr. Thompson takes exception to my statement that there are waterway schemes before this country involving an initial expenditure of approximately $2,500,000,000, and he wishes to understand in what way they are before the country. If Mr. Thompson will read the reports of the score or more of waterway associations which are insistently demanding funds for waterway development he will find that my figures are substantially correct. I should say that a project was before the country for consideration even though it had not been favorably passed upon by a board of army engineers. For instance, at the last session of the Lakes-to-Gulf Waterway Association a firm stand was taken for an ultimate depth of 24 ft. from Chicago to the Gulf. Nine ft. and 14 ft. are but steps on the way to the greater depth, and the 24-ft. project is, in my opinion, before the country for consideration. Mr. Thompson forgets, furthermore, that the usual preliminary estimates invariably prove but a fraction of the amount required to complete the projects. It was estimated that the Chicago drainage canal would cost $16,000,000, but it eventually required nearly $55,000,000. The Manchester ship canal cost more than twice the original very careful engineering estimates. The first estimate of the cost of the Panama canal, made by the government engineers, was $140,000,000; the latest is $375,000,000. Such is the history of all canal construction. If this be true after the engineers have made their careful reports, how much more is it likely to be the case with projects which have not been surveyed? In this connection it should be reflected that those who ask for government appropriations usually realize that their demands should appear modest in amount; and there is accordingly little reason for a belief that the probable cost has been underestimated.

Again, Mr. Thompson, like all other waterway advocates, chooses to ignore the cost of building the necessary harbor and terminal facilities along the water routes. He includes terminals in the cost of railways, and to be consistent he must also include them in the cost of waterways. The State of New York voted its $101,000,000 for enlarging the Erie canal without having given a thought to the question of terminals. Several years later it was discovered that terminal facilities were as essential to the success of the scheme as the canal itself, and a commission was appointed to look into the terminal situation. After spending many thousand dollars in investigation it was found that the terminal sites at both New York and Buffalo were largely under the control of private corporations, and that to secure possession of them would require the expenditure of over $18,000,000. To equip the necessary harbors, wharves, docks, etc., and to construct the necessary boats will doubtless cost as many millions more. If a 24-ft. waterway should ever be constructed from Chicago to the Gulf, has Mr. Thompson ever considered what it would probably cost to build a great ocean harbor at Chicago, and to reorganize the great railway terminal system of the city in such a way as to put it into harmonious relationship with the waterway? The cost of water transportation cannot be fully counted until such enormous outlays as these are included.

But Mr. Thompson errs most in his bald assumption that the waterways of other nations have met with the most unqualified success. It so happens that I have made an exhaustive first-hand study of the conditions of transportation in Europe, and I am consequently in a position to present some statistics of the total cost of transportation on the waterways of the continent.

The city of Frankfort, in Germany, is located on the Main river, twenty-three miles from the Rhine. Prussia and the city of Frankfort have together expended upon the canalization of the Main and the development of harbor facilities at Frankfort approximately $23,000,000, or about one million dollars a mile for the twenty-three miles of river between its junction with the Rhine and the city. At the average rate of railway construction in Prussia this would build nine or ten fully equipped railways between the same points. As a matter of fact, all of the present traffic could easily be handled on existing railways, and a single new double track railway could carry any amount of traffic that can be expected to develop in that region. Were the existing railways given this $23,000,000 subsidy they could move all the freight that now goes by water for nothing and still earn handsome dividends.

The well-known Dortmund-Ems canal cannot compete with the railways without the aid of enormous subsidies. In the year 1905 the deficit which was paid out of the public treasury for the support of this canal amounted to about 58 cents a ton for all the traffic that passed over the canal. To this is to be added the actual charges made by the barge companies, and the small tolls and harbor dues as well. When thus computed the total cost of transportation on this famous canal is found to be nearly twice that on German railways for similar kinds of freight. It should be stated in this connection, also, that the rates on German railways are much higher than on American roads, even on similar freight traveling under comparable conditions.

On all the waterways of eastern Germany traffic has increased but slightly in the last thirty years, and in every case, if we include the deficit met by the state, the cost is much greater than that by rail. The Rhine river, alone, may be regarded as unqualifiedly successful, and this is due to the tremendous quantities of coal lying near its banks, and the exceptionally favoring navigation conditions on the river.

Two German writers, Rathenau and Cauer, of Berlin, have computed that a barge canal between the Rhine river and Berlin, adequate for barges of 600 tons capacity, would cost approximately twice as much as an all-freight railway, and that at the same time its capacity would be only about half as great. The results of their study are published in a little volume entitled: "Massengüterbahnen." It should be added that the Germans have found from experience that the increased cost of constructing canals for boats of greater than 600 tons capacity

much more than counterbalances the gain coming from the enlarged carrying capacity of the canal.

Mr. Thompson says that the most efficient transportation system will be one in which waterways shall co-operate with railways. Much has been made of this point by waterway advocates, and it is therefore important that we inquire how this supposed co-operation is brought about in Europe.

In Germany the government fixes the rates of the railways on competitive traffic very high, and by relieving the waterways of nearly all the fixed charges enables the boat companies to charge much lower rates than those by rail. In addition, where it is necessary to transship goods from railways to waterways or vice versa, the government fixes but a nominal charge for the service, making up the deficit out of general taxation. In this way they force co-operation, if we may use the expression. If the railways were permitted to compete for the traffic it would be an easy matter for them speedily to divert the greater part of it to themselves.

In France, in order to force traffic to travel by water it is necessary to give the water routes enormous subsidies, amounting in 1905 to about 60 oenas a ton for all the freight handled by water, and at the same time to prevent the railways from lowering their rates for competitive purposes. Although the railways are entirely self-supporting, and although they contribute a large amount each year to the government in the way of taxes and special services, and although they earn handsome dividends, it is still necessary to compel them to quote rates on competitive traffic at least 20 per cent. higher than the water rates; this in order to prevent them from diverting traffic from waterways entirely supported at public expense. The co-operation between the railways and waterways of France is then, also, a forced co-operation. And it is far from advantageous to the railways. Wherever for special reasons the French railways have been permitted to lower their rates on competitive traffic they have been able to divert the freight to themselves while still earning reasonable returns on the business. The railways of France are in great need of the traffic that now travels by water. On page 31 of the Preliminary Report of the National Waterways Commission is a table which shows the density of traffic on the railways of France to be much less than on those of Germany and Belgium; and it is but a fraction of that on some of our leading American railways. The railways of France could easily handle all the traffic of the country; and if they were permitted to handle the total tonnage they could substantially reduce the cost per unit, not only on that which now travels by water, but on their own present traffic as well. The transportation business is subject to the law of increasing returns to an unusual degree. The larger the traffic the less is the cost per unit. Dividing the traffic of a country between two agents, therefore, when one alone is sufficient, is to increase the cost of the service on both agents.

M. Colson, Director of Roads and Bridges, and Counselor of State in France, and the foremost authority on French transportation, stated to the writer that, in his opinion, the expenditure of money on inland waterways except in the case of great rivers like the Rhine and Volga, of gentle slope and constant water supply, is nothing short of stupid. Yves Guyot, the noted French economist, writes that if burdens were placed on the waterways similar to those placed on the railways of France, the boats would all be in the bottom of the canals.

Mr. Thompson contends that the railway service of the United States has permanently broken down and that waterways have become an indispensable aid. The same argument has been made in regard to the railways of other countries. Now, if Mr. Thompson will refer to the statistics of car shortages and surpluses which are published monthly by the American Railway Clearing House, he will find that since the fall of 1907 there has been an almost constant surplus of cars in this country, often amounting to several hundred thousand for months at a time. There was a serious congestion of traffic in 1906 and 1907, during the height of the great prosperity period, just as there was a serious general business congestion at that time, but with the normal conditions that have since prevailed the railways have been able to care for the traffic needs of the country with reasonable satisfaction.

The question of the ability of the railways to meet the growing needs of commerce was thoroughly discussed at the International Railway Congress, which was held at Berne, Switzerland, in July, 1910. In reply to advance questions asking if it were possible for the railway net to be expanded sufficiently to meet all future traffic requirements, the representatives of every country, except Prussia, replied in the affirmative. The Prussian delegates stated that they regretted to say that they must refuse to answer that particular question. Now, it had been officially stated in Germany that the density of traffic in the Westphalian industrial region was so great that additional canals there were indispensable. M. Colson raised the question with the Prussian delegates, and they replied guardedly that the opinion of the railway men of Prussia had never been asked upon that point. When the present writer raised the question with an engineer in the waterways division of the department of public works in Germany, as to how it was that if canals required more ground space in proportion to carrying capacity than the railways, they could be regarded as a means of relieving traffic congestion, there was no reply. The fact of the case is that the argument in Germany emanated from the Kaiser, who has his heart set on the continued development of the waterways. And the story has been more than once told in print that in order to secure the passage of the canal bills of 1899 the Kaiser dismissed twenty members of the Landtag and appointed twenty men in their places who would do his bidding. If Mr. Thompson would make even a cursory study of the waterways of Europe he would perhaps not be quite so certain that their experience teaches that large expenditures upon the development of American waterways "would be one of the wisest and most profitable investments that the people of the United States could possibly make."

Finally, I should like to call attention to the fact that Mr. Thompson, like other waterway advocates, entirely overlooks the cost of transshipment in counting the cost of transportation by water. Comparatively a small amount of traffic both originates and finds its destination directly on the banks of water routes. One or two transshipments are usually necessary. It is well known that the cost of loading and unloading goods, of transshipping them, is often much greater than the cost of moving them the entire distance from place of origin to point of destination. Indeed, the cost of transshipment is so heavy that it has been impossible to develop any considerable transshipping business in France. Millions of dollars have been expended in the development of transshipping facilities, and belt lines of railway have been constructed at the important waterway terminals, and yet nearly 99 per cent. of the waterway traffic of France is strictly riparian. In Germany transshipments are secured only by means of subsidy, by charging, as we have seen, much less than the cost of the service and making up the deficit out of general taxation. The waterway advocates of this country have absolutely no assurance that any considerable amount of transshipping business would develop.

Even if it should come to pass that goods would be extensively transshipped from rail to water and vice versa, I should like to raise the further consideration that the congestion of traffic would thereby be increased rather than diminished. The recent railway congestion was felt primarily at the terminals and transshipping centers, and was due in no small degree to a dearth of yard facilities. But be the railway situation ever so bad in this respect, it is much easier to transfer a loaded car from one track to another than it is to transfer the cargo from a car to a canal boat or the reverse. Congestion of traffic has been much increased in the Westphalian industrial region of Germany through the necessity of transferring the cargo from rail to water within the congested area. The same result would inevitably result from the adoption of a similar policy in the United States.

H. G. MOULTON.

APPLICATION OF THE NEW LONG AND SHORT HAUL CLAUSE TO INTERMOUNTAIN RATES.*

Railroad Commission of Nevada v. Southern Pacific et al. Maricopa County Commercial Club v. Santa Fe, Prescott & Phoenix et al. Opinion by Commissioner Lane:

It is now nearly a year since the commission issued its order establishing class rates from eastern points to stations in Nevada and Arizona. At that time it was announced that the question of commodity rates was reserved for later consideration. Before the commission came to deal with the matter of commodity rates, Congress amended the fourth section of the Act to Regulate Commerce with this very intermountain situation distinctly in mind, as the congressional debates disclosed. We have decided to allow our previous order as to class rates to stand, and instead of fixing commodity rates, proceed in accordance with the appeal of the original complaint, but more particularly in compliance with our understanding of the meaning of the new fourth section to seek an adjustment of the relations between the rates to the coast cities and the rates to interior points. Many theories as to the interpretation of the new long and short haul clause have been offered to the commission.

The simple truth is that Congress determined upon strengthening the long-and-short-haul section. Members of Congress representing those portions of our country against which there was the greatest discrimination presented amendments to the fourth section that would make it rigid, inflexible, absolute. Against these amendments the carriers themselves made protest that was supported with reason. The commission itself, although the opportunity had frequently been presented to it, has never indorsed a rigid long and short haul section. Indeed, the present provision is drawn along lines which received the tentative approval of the commission. In short, Congress intended that the law should say that, as a general rule, there should be no lesser charge to the more distant point, but it was not willing to say that there should not be some exceptions to this rule. The railways, however, were not to make these exceptions themselves. Such exceptions were to be made only upon petition to the commission and public justification being shown.

Clearly section four is at least a continuance of the stringent prohibitions against discrimination which are found in the preceding sections. In section two the carriers are told that they must not prefer one individual over another in the matter of rates. This is an "equality clause," as the English courts style it; and it was taken from their law. So with reference to the long and short haul section. It is in its nature a discrimination for a community that is nearer New York to be charged a higher rate upon freight from New York than a community that is at a greater distance from New York, the same line being used for the traffic. On its face nothing could appear more unjust than the relationship that exists between the intermountain cities, such as Reno and the coast cities, such as San Francisco.

In every decision of this commission, under any section whatsoever, there enters the element of personal judgment, just as in every verdict of a jury the result is colored necessarily by the mental attitude and experience of the juror.

The commission has not been left without a proper test to apply: The test of justness, of reasonableness, of discrimination, of preference and advantage; the test of fair play as between communities. Congress has undertaken to specify distinctly one practice which it wishes especially to destroy and charges this commission not to permit it to obtain unless such discrimination may be shown not to be a discrimination. All the burdens of establishing these justifying conditions are cast upon the carriers; the doubts are to be resolved against them; the wish of Congress is expressed and clear. The carrier may no longer float along as under the old section, needing no other justification for its policy than its own conscience, but must set forth clearly what it is doing and convince those constituted to judge that this exceptional policy in a special case is in harmony with the intent of Congress. The proviso, however, is primarily for the carrier's benefit; it recognizes that the railway may engage in competition for traffic to more distant points at lower rates than may be charged to intermediate points without doing injury or injustice to such intermediate points. But to this policy a limit may be, indeed must be put.

There is in our minds no doubt but that the Congress can put into effect a long-and-short-haul clause, such as is here considered. Similar provisions obtain in the laws of Arkansas, Indiana, Kentucky, Iowa, Massachusetts, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, North Dakota, Ohio, South Carolina, South Dakota, Texas, Vermont, Virginia and West Virginia.

Until a carrier could demonstrate that its property was being confiscated by the enactment of a hard and fast long-and-short-haul clause it could not be heard to complain against the enactment of such a law. But this is no such provision. This section as it stands now reveals the mind of the Congress that in fairness to the carriers they may be allowed in exceptional cases to meet exceptional conditions at distant points, but these exceptions shall be controlled, not by the whim of the carrier or by its own desire to give preference or to increase earnings established that the carrier will suffer if such discrimination is not permitted, and, too, that the public will not suffer by such procedure. The proviso of the act is an extension of governmental leniency. It is made in the carriers' interest, and if it were removed from the act there is doubt if the carriers themselves could be heard to complain.

In dealing with this case we shall regard as established: That the intendment of the law is to make its prohibition of the higher rate for the shorter haul a rule of well-nigh universal application from which this commission may deviate only in special cases and then to meet transportation circumstances which are beyond the carriers' control; that is to say, a carrier shall not prefer the more distant point by giving it the lower rate because of any policy of its own initiation, but if at the more distant point it finds a condition to which it must conform under the imperious law of competition if it would participate in traffic to that point it may discriminate against the intermediate point without violating the law, provided it establishes such necessity before the commission.

We turn now from consideration of the law to a survey of the facts involved in the transcontinental rate situation. It is more than twenty years since this commission was first petitioned to extend to intermediate points the westbound rates that were given to the Pacific coast terminals. The agitation for a rigid application of the rule that a more distant point should not enjoy a lower rate has persisted throughout the years, manifesting itself before the commission, the courts, and each succeeding session of Congress at which consideration was given to the amendment of the act to regulate commerce. The intermountain country, in which Reno is a typical point, has led in this agitation. A shipper finds it difficult to reconcile himself to paying $500 a car for the transportation of a carload of merchandise to his own city when that same carload will be carried from the same point of origin through his city to a point 500 miles beyond for $300. Such a condition appeals to all as prima facie unjust. The railway, however, answers that it grants the $300 rate, not because it desires to, but under compulsion of water competition, and that the $500 rate is reasonable for the service that is given to the intermediate point.

We come thus to inquire: What is the transcontinental scheme of making rates, and what are the causes which have produced it? Has there been real competition between rail and water carriers, and what has been its effect? To what extent, if at all, does this present rate scheme rest upon the active rivalry of ocean and rail lines?

*In this abstract insofar as possible the language of the commission is preserved.

If one reverts to the original report in this case and studies the map therein printed, it will be seen that what is known as transcontinental territory extends from Colorado on the west to Maine on the east, and from this blanket the same rates are given practically upon all classes and commodities to what are known as Pacific coast terminal points. Of these latter the principal ones are Seattle, Tacoma, Portland, San Francisco, Los Angeles, and San Diego. In Oregon but two places enjoy these rates—Astoria, at the mouth of the Columbia River, and Portland, at the junction of the Willamette and the Columbia rivers —to both of which points steamships and sailing vessels carrying Atlantic seaboard traffic have easy and constant access. In southern California, San Diego is upon a harbor and is a port of call for steamships engaged in interoceanic traffic. Los Angeles, however, is not upon the sea; at least has not been until recently. The city limits of Los Angeles have now been extended so as to include a strip of land extending from that city to the port of San Pedro, which has become the port of Los Angeles, and the citizens have raised a fund for the improvement of the harbor and its water front and the building of a municipal line of steam railroad for the 16 miles between the heart of the city and the water's edge. This anomalous condition of things, however, exists—that until a recent order of the Commission the little city of San Pedro, through which traffic by water moved to and from Los Angeles, was denied terminal rates, although the city of Los Angeles, which was inland, enjoyed such rates. Many cities and towns an equal distance from the seacoast but equally accessible thereto do not enjoy terminal rates, and some immediately upon the coast, such as Ventura and Santa Barbara pay higher rates than does Los Angeles. How, then, is this preference of Los Angeles justified? The answer of the railways is that the benefits of sea competition were extended to Los Angeles by an arrangement between the Santa Fe Railway and the American-Hawaiian Steamship line, the Santa Fe publishing an extraordinarily low schedule of rates upon traffic transshipped at San Diego and destined to Los Angeles. In 1900 the American-Hawaiian Company put on a line of steamships by way of the Straits of Magellan, and for the last five years has had a considerable fleet engaged in this through business by way of the Tehuantepec National, which is controlled by the Mexican Government. This steamship line stops at San Diego, but does not stop at the port of San Pedro. The Santa Fe Railway extends to it and other water carriers a schedule of class rates from San Diego to Los Angeles approximately the same as that obtaining over the San Pedro line from San Pedro to Los Angeles, this schedule being based on a 16-cent rate per 100 pounds for first class traffic. Thus Los Angeles, by a combination of circumstances becomes a "terminal point."

Proceeding northward to central California, the first terminal that we find is San Jose, which is some ten or twelve miles removed from the Bay of San Francisco and can not be reached by water.

From even a rough sketch of the Pacific coast terminal situation it is at once perceived that it is not the result of the rigid application of any principle based entirely upon sea competition, for terminal rates are given to cities which are not upon the ocean, and the railways themselves in some cases have forced the sea carriers to absorb inland rates in order to meet railway competition at these interior terminal points. In passing it may be said that the population of California is approximately two and a half millions, of which it is estimated by Mr. Chambers, of the Santa Fe, that two millions are at, or within 30 miles of, terminal points.

Turning our eyes eastward and regarding the territory in which originates this traffic it is at once appreciated that the same rate applies whether the traffic comes from New York harbor or from Chicago or Kansas City. Now, it is not contended that there is any direct water competition from Chicago or Kansas City, or the territory intermediate between the Missouri River and New York. How, then, does it come about that the same rates apply from inland points as from seaports? To answer this question it may be well to look back over the very remarkable history of the long-fought struggle between the transcontinental railways and the ocean carriers.

The history of this protracted struggle between the ocean and the land carriers shows that one water route after another has been rendered innocuous. To meet the competition of the railways the tendency of the ocean carriers has been to shorten the time consumed in passing by water from coast to coast. The clipper ship has been forced to give way to the steamship and the steamship has been compelled to transship by rail a portion of the distance. The routes by way of Cape Horn and the Straits of Magellan have been virtually abandoned. For nearly 40 years the Panama route has been under railway control. When an attempt was made to re-establish this route as a vital competitor, the railways used their own ocean-and-rail-line to eliminate it from the field. So that for several years there has been but one ocean line which apparently has no railway connection, that of the American-Hawaiian Steamship Company; and this line lives on sufferance, its rates being made with the knowledge of the railway company and with a more or less definite relation to the transcontinental rail rates. Within the past few months another water competitor has entered the field, the California-Atlantic line, which has done an extensive business both east-bound and west-bound for the short time that it has been in existence, but the prophecy made by the railway witnesses is that it will not last long.

In the light of this history it is not to be gainsaid that the transcontinental lines must give consideration to sea competition. For 30 years and more their effort has been to "neutralize and control" such competition, in the phrase of Mr. Stubbs, vice president of the Southern Pacific system. While they have subsidized, bought, and controlled the water carriers, there has always been present to the mind of the traffic manager of the transcontinental railway the existence of the ocean and the possibility of its use. Without a ship on it the ocean has the power to restrain, in some degree, the upward tendency of rail rates. A railway may not safely indulge its desire to impose all the traffic will bear between two ocean ports, and it may truly be said that the least poetical of railway traffic managers never looks on the ocean without a sense of awe.

The railways, moreover, must soon meet with a competition by water more intense than any that they have heretofore suffered, for within three years another route, one more important, searching, and determinative in its effect upon railway rates than any other, will be opened—a route all water by way of the Panama Canal. The cutting of this canal will in effect bring the Straits of Magellan 3,500 miles to the northward, and with modern steamships it is estimated that San Francisco will by water be removed from New York but 14 days.

We have noticed how through the years the blanket of class and commodity rates has been drawn westward from the sea-competitive point until it extends two-thirds of the distance across the continent. How have the carriers justified this blanket to the coast but not to intermediate points? Long before the blanket had been stretched to its present western extent the communities intermediate between its eastern border and the Pacific made protest against the injustice that was being done. For nearly a quarter of a century this complaint has been heard and has ceased at times only to be revived with greater earnestness. A line of railway policy which leads to such result may be presumed to have in it something artificial and unnatural. That which appeals to us as unnatural in this situation is that rates which are said to be less than reasonable because compelled by ocean competition are made from points where we can find no such competition. We look in vain throughout the records of this commission for 20 years to find any but the most fragmentary evidence that sea competition extends to Chicago. On the contrary, it is the admission of the carriers themselves that the rates which they make from Chicago to the Pacific coast terminals are established in order that the manufacturers and the jobbers of the west may compete on a level with the jobbers

and manufacturers who have the advantage of a location at the Atlantic seaboard.

Whatever the reason, the fact stands forth throughout this record that the source of supply upon which the far western communities largely draw their manufactures has within half a century moved westward from the Atlantic seaboard, so that, as was found by the railway commission of Nevada from an analysis of the billing of actual shipments into Reno, 75 per cent of their traffic coming from the east originated no farther east than the longitude of Chicago. There are cotton mills as far west as Kansas City; mining, milling, and farming machinery is produced more largely in and about Chicago than in any other section of the country; boots and shoes, hats and clothes, cooking utensils, and the multitudinous articles of domestic use may be secured in large part without coming east of the Alleghenies; in fact, the center of those industries which supply the far west apparently is not far removed from the center of population of the country. This is a pregnant fact.

It is not provable, but there is much reason to support the statement that if all the producing territory—the fruit and vegetable growing, mining, and lumbering territory—which does not receive the benefit of terminal rates, and which is compelled to pay the rate to the coast plus the rate back upon its commodities of eastern production, were taken from the transcontinental carriers they would be on the verge of bankruptcy in but a short time. Surely a railway policy adapted to the conditions of one day may properly change with the conditions of another, and in the very nature of things it must be apparent that the transcontinental carriers can not continue forever charging higher rates to the intermountain country than to the coast from the middle west. The condition is too artificial to last. The carriers have taken from San Francisco in large part the advantage that she should enjoy from her situation on the ocean by throwing around her a circle of terminal points 100 miles or so inland. By doing this they have forced water carriers to meet rail competition at these interior places, and yet the railways urge that the rates are made to meet ocean-to-ocean competition. In the east they have stretched the blanket from Portland, Me., to Denver, Colo., a distance farther than from Antwerp to Moscow, but they refuse to admit that from any point along this long line it would be justifiable to make the rates given to the coast terminals applicable to Reno.

Furthermore, we find that this situation is artificial in that it has been brought about by a procession of agreements between carriers. Each carrier has been appeased by giving to it something which would cause it to be satisfied with the arrangement. The carriers have competed with each other across a table until their minds agreed upon a condition that would prevent rate wars. It is wholesome and beneficial that the body politic should not be disturbed by rapid fluctuations in rates of transportation which tend to destroy the stability of commerce and imperil the fortunes invested in such transportation facilities. If society does not undertake to regulate the methods by which a natural monopoly such as a railway may be profitably conducted it is not to be expected that such a monopoly will not seek to protect itself, even at the disadvantage of the public it serves. The results of such self-protective measures, however, must be such as neither to offend the law nor be opposed to the development of the country and the instinct of its people for fair play.

Ocean competition, say the carriers, brings about the low rates from coast to coast; market competition produces the lower rates from the interior to the coast. We have considered ocean competition and see how real was its effect and how the carriers dealt with it. "Market competition" is a phrase with which the railway traffic manager too often conjures. When no other force can be found which brings about a discrimination, market competition is advanced. It is both a sword and a shield; it is used to protect the carrier against attack because of undue discrimination as between communities, and it is a weapon of offense as well, by which one carrier invades the territory of another upon a different basis from that which it grants to its own immediately dependent communities and forces concessions from its rival carriers.

Market competition, as we have seen, is a euphemism for railway policy. The history of the fourth section makes clear that it was born out of a desire, and has been amended out of the purpose, to restrict the force and effect of market competition. Experience has demonstrated to the national legislature that it is not safe to leave to the carriers the determination of the question what markets should be brought into competition with one another. Clearly to allow for market competition as a sole and controlling factor under the fourth section is to render it nugatory, for this would be tantamount to saying that a railway could justify every discrimination as between communities by the assertion of nothing more than its own determination of policy.

In this case and under these applications the commission has given thought to many considerations not touched upon in this report, some of which are suggested by the tables to be found in the Appendix (C—D). Such, for instance, as the reasonableness of the transcontinental rates upon commodities in and of themselves when applied from different points of origin and the relation of the cost of service over the Central Pacific when delivery is made at Reno or at San Francisco. And when we have considered the return per ton-mile yielded by many of these rates it is not remarkable that other carriers from the east have pressed forward, even to their own temporary financial embarrassment, to reach these coast terminals. No other carriers in this country enjoy such long hauls on so great a volume of high-class traffic as do these transcontinental railways.

Their fine earnings are testimony to this effect, as well as to the competency of their management. If the principle that a railway should charge what the traffic will bear is the criterion of railway rates, no exception can be taken to the transcontinental situation, for it is masterfully designed to secure a maximum of revenue and yet develop such industries and benefit such communities as the railway in its wisdom may wish to thrive, for the growth of the Pacific coast certainly is in no small part to be accredited to the discretion lodged in and exercised by the transcontinental traffic manager.

We desire to be extremely conservative in this the first application of the new law, and to require an adjustment of rates that will be safely within the zone of our discretion. For this reason we have decided that the transcontinental carriers serving Reno and other points upon the main line of the Central Pacific shall make no higher charge upon any article carrying a commodity rate than is contemporaneously in effect from Missouri River points, such as Omaha and Kansas City, to coast terminal points. This principle we shall also expect to be applied on commodity rates to all main-line intermediate points in Nevada and California. Traffic originating at Chicago and in Chicago territory moving under commodity rates may have a rate 7 per cent. higher than that imposed on freight originating in Chicago and Chicago territory and destined to the coast terminals. From Buffalo-Pittsburg territory the rates to intermediate points may rise above those demanded and charged from the same points and territory to the coast terminals to the extent of 15 per cent., while from New York and trunk line territory the rates charged shall not exceed 25 per cent. over and above terminal rates. This means that Suisun, Auburn, Truckee, Reno, and Elko, for instance, points intermediate to San Francisco from the east, shall have at least the benefit of the commodity rates extended from the Missouri River to Sacramento and San Francisco, and shall pay no more than 7 per cent. above the Chicago-coast terminal rates, etc., from Pittsburg and New York territories.

Some of the petitions under the fourth section which have been considered are made by carriers reaching California terminals through the southern gateways, southern Nevada and Arizona. These applications are also denied in so far as they involve the imposition of higher rates upon intermediate points

than are applied on commodities from the Missouri River to Los Angeles, San Francisco, or other coast terminals. To all such intermediate points [Ashfork, Maricopa, San Bernardino, Bakersfield, Fresno, and Ventura, for instance] terminal rates shall not be exceeded as from Missouri River points, with the same proportionate advances east of the Missouri River as heretofore specified.

An order will be made to this effect, allowing to the carriers until October 15 in which to file tariffs in accordance with said order—the same to go into effect upon three days' notice.

No order need be entered in either the Reno or Phoenix cases, so-called, at this time. (21 I. C. C. 329.)

APPLICATION OF THE LONG AND SHORT HAUL CLAUSE IN THE SPOKANE CASE.*

City of Spokane et al. v. Northern Pacific. Commercial Club Traffic Bureau of Salt Lake City, Utah, v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Prouty:

The real gravamen of the complaint was directed towards the alleged discrimination against the city of Spokane, which resulted from the fact that the defendants charged from eastern points of origin to Seattle, Portland, and other Pacific coast terminals lower rates than were applied at Spokane, although the traffic moved through Spokane in reaching those points. While it was alleged that the rates were in and of themselves unreasonable and while this allegation has been sustained by the commission, nevertheless the moving cause of the complaint was the violation of the fourth section, and to some extent this same question was involved in the Salt Lake Case.

The commission felt that, in view of the whole situation, rate to Spokane from eastern territory ought in justice to depend to an extent, at least, upon those which the carriers made to the coast cities, and it considered the advisability of attempting to dispose of the case upon that theory, but in view of the doubt as to its right to do so it adopted the plan of prescribing a schedule of rates to Spokane without reference to the coast.

On June 18, 1910, subsequent to the promulgation of the foregoing opinion, the fourth section was amended. The city of Spokane claims that the amended section now in express terms forbids the discrimination against which that locality has always protested. In this case we have to inquire:

1. What is the duty and authority of the commission under the present fourth section?

2. Can the commission under that section make an order in one or both of these cases which will obviate the necessity of prescribing a schedule of reasonable rates?

The most satisfactory way of determining the effect of this amendment is by inquiring what meaning had been put on the omitted phrase, "under substantially similar circumstances and conditions," and what the practical effect of that phrase had been on the operation of the section itself.

It was the claim of the carriers that if competition of any sort existed at the more distant point this created the necessary dissimilarity of circumstances and conditions and removed the case from the prohibition of the fourth section. The attitude of these carriers was tantamount to an entire disregard of the section itself.

This subject finally reached the Supreme Court of the United States in what is known as the Alabama Midland case —I. C. C. v. Alabama Midland, 168 U. S., 144.

In the main the opinion of the court fully sustained the contentions of the carriers. It held that where there was a dissimilarity of circumstances and conditions the rule of the fourth section did not apply, and that it was for the carriers themselves to determine in the first instance whether that dissimilarity did exist. It also held that all forms of competition must be considered in determining whether circumstances and conditions were similar at the two points.

The commission understood this decision to mean that if circumstances and conditions were different at the more distant point, that of itself removed the case from the inhibition of the fourth section and from the jurisdiction of the commission under that section.

Later in a proceeding before the commission out of which the E. T., V. & G. Ry. Co. v. I. C. C. suit grew, the city of Chattanooga complained that carriers leading through Chattanooga to Nashville made a lower rate from eastern points of origin to Nashville than to Chattanooga. The commission had found that there was no water competition which forced this lower rate, but that there was a competition of railways and of markets which forced the defendants to accept the Nashville rates, and that if compelled to observe the long-and-short-haul provision they must either reduce their rates at Chattanooga or retire from the Nashville business. The commission had ordered the carriers to cease and desist from charging more to Chattanooga than to Nashville, and this order had been affirmed first by the circuit court and afterwards by the circuit court of appeals.

The Supreme Court of the United States reversed all these findings and held that on the admitted case competition did exist at the more distant point which compelled the taking of the lower rate and, that this being so, circumstances and conditions were dissimilar and the fourth section not applicable.

This decision of the Supreme Court fully confirmed the interpretation which this commission had placed upon the Alabama Midland case. If circumstances and conditions at the more distant point were dissimilar, carriers might without restraint depart from the long-and-short-haul rule. This virtually repealed that section, for the reason that it is always possible to show in the interlacing network of railways in this country, and in view of the intricate commercial conditions, that circumstances are different at one point from another. To hold that carriers may, wherever the dissimilarity exists, meet that competition or decline to meet it, partially meet it here and fully meet it there, is to hold that they may without practical restraint discriminate between different localities.

The history of the judicial interpretation of this section has been given with tedious and apparently unnecessary detail, in order that the effect of the words "similar circumstances and conditions" on the actual application of the statute might be clearly apprehended. The fourth section was for practical purposes a nullity. For 20 years this commission has made no order of consequence under that section which could be enforced, and this because of the existence of these words.

In view of these facts what was probably the intention of congress in removing that phrase from the statute? It is earnestly contended by the carriers that the only effect was to take from the railway the power of initiative. The carrier can no longer judge in the first instance whether it may disregard the rule of that section, but is compelled to submit that question to the commission.

To this view we can not subscribe. Had the only purpose of congress been to shift the burden of proof it would have said so, as it did with respect to certain other rate conditions. It meant not merely to declare a wrong, but to provide a remedy.

This brings us to the further inquiry: What is the function and authority of the commission under the fourth section as amended?

That section provides that no carrier shall charge more for the short than for the long haul unless on application to the commission permission to do so is granted by it. If this section were read by itself and were taken at its literal face meaning, the commission would possess unrestricted power to grant or deny such application. It could permit in one

*The language of the commission has, so far as possible, been preserved.

case and refuse in another, according as its fancy might dictate.

So construed, the proviso would probably be void as a delegation of legislative authority.

The statute of Minnesota provided that any railway company desiring to increase its capital stock should apply to the railway commission of that state, and that no increase should be made without the consent of that commission. The supreme court of Minnesota held that this statute was unconstitutional as a delegation of legislative authority. State v. G. N. Ry., 100 Minn., 445.

There would seem to be little difference between delegating, without restraint, to a railway commission authority to determine whether the capital stock of a railway shall or shall not be increased and investing that commission with power to arbitrarily determine whether, in a particular case, the long and short haul rule may be departed from. Of the two, the latter power would rather more clearly involve the exercise of legislative functions.

Counsel for the city of Spokane insists that we should hold that the fourth section imposes an absolute long-and-short-haul rule and should enforce that rule against the carriers.

It is the rule that where a statute is susceptible of two interpretations, under one of which it is constitutional and under the other unconstitutional, that interpretation must be adopted which will save the validity of the act.

Bearing in mind the authority which the commission now administers in prescribing a reasonable rate and in declaring and correcting as undue preference, it seems evident that the purpose of congress was to commit to this body the duty of determining whether if the carrier was permitted to charge a higher rate at the intermediate point that would result in a violation of the provisions of the act. But in so doing the commission can not act arbitrarily. It must investigate each case, and if after such investigation it is of the opinion that a departure from the rule of the fourth section would not result in unreasonable rates or undue discrimination it must permit that departure. If, upon the other hand, it is of the contrary opinion, it must refuse the permission. Such is the only possible construction which can be put upon this section in connection with the entire act, and if any doubt as to the real purpose of congress could exist, it must be effectively put at rest by an examination of the history of the passage of this measure.

The question may arise as to what elements the commission should now take into account in determining whether permission should be granted to deviate from the rule of the fourth section. It was formerly held by the commission that in applying that section only competition by water and competition with railway lines not subject to the act to regulate commerce could be considered; that all other forms of competition should be disregarded. Is this rule to be still observed?

We think not. The former holding of the commission was under the section as it then existed and expressed an attempt to so construe the words "circumstances and conditions" as to give some real vitality to that part of the act. The section today in its practical application is entirely different and the questions presented for consideration are different. We are considering now not merely whether circumstances at the two points are dissimilar, but whether, on the whole, that dissimilarity justifies a departure from the rule of the section.

Competition of carriers subject to the act has always been a factor with us in determining whether a preference in favor of a given locality is due or undue, and that is substantially the question which must be answered in passing upon an application under the present fourth section.

Strictly speaking, there is no such thing as market competition which is distinct from competition between the lines of transportation serving the market. A market can only compete through the agency which transports for it. The carrier makes a rate from a given market, not out of favor to that locality, but because it desires to obtain traffic which will not otherwise come to it. There would seem, therefore, to be little distinction between the competition of markets and the competition of rival railways. The whole situation must be considered by us in passing upon these applications.

The amended section provides, as did the original section, that the commission may from time to time prescribe the "extent to which such designated common carrier may be relieved from the operation of this section." Congress has evidently had it in mind at all times that cases might arise where carriers should properly be permitted to charge a lower rate at the more distant point, and has intended to arm the commission with authority to do justice in such instances by permitting a deviation from the rule of the section and prescribing the amount of that deviation.

We hold that under the amended section it is the duty of the commission to investigate each application made by a common carrier for leave to depart from the rule of the section.

Spokane is located about 400 miles east of the Pacific Ocean, in the midst of a region rich in agricultural and mineral resources. Between it and the coast lies the Cascade Range of mountains. Spokane is the principal city in Washington east of these mountains and aims to distribute to the territory which surrounds it, in which attempt it meets severe competition from Seattle, Tacoma, and Portland.

Two of the trunk lines of railway serving Spokane both from the east and the west are the Northern Pacific and the Great Northern, the principal defendants in the Spokane case. Traffic handled by these carriers from eastern points of origin to the Pacific coast cities passes through Spokane and over the Cascade Range. Notwithstanding this, rates to Seattle, Tacoma, and Portland from points as far west as St. Paul and the Missouri River are, for the most part, materially higher to Spokane than to coast towns. Merchandise consumed in territory east of the mountains can be hauled through the city of Spokane, across the mountains, to Seattle, and from Seattle back over the mountains a second time, at a less transportation charge than it can be taken to Spokane and thence distributed to this territory. It is against this relation of rates that Spokane has always protested and now protests. Its complaint is, first of all, against this violation of the fourth section.

Carriers justify this scheme of rate making upon the plea that water competition between the Atlantic and the Pacific coasts fixes the rate from eastern points of origin to the coast cities, and that they, in naming heir rates to those points, simply meet the water rate.

The complainants insisted on the original hearing, and have renewed the claim at every stage of this proceeding, that there is no active water competition; that the whole claim of water competition is put forward by the defendants as a pretense by which to justify the rank discrimination against the interior points.

The circuit court of the United States has twice found, once in a proceeding concerning these very rates to Spokane, that active water competition does exist which controls the cost rate.

This commission has repeatedly found and recognized the same fact.

In the recent hearing upon the applications of transcontinental lines for leave to disregard the rule of the fourth section evidence has again been produced upon this subject which conclusively shows that the previous finding of the commission is right. We had before us in the Spokane case the manifests of two ships from New York to San Francisco, and in the last hearing we had the manifests of two other ships. They showed in detail the articles transported, the

point where they originated, the destination for which they were intended, and the rate under which they moved. These actual transportations prove more conclusively than any mere statement that almost every article which is the subject of ordinary commerce between the coasts can and does move from New York to San Francisco by water at rates materially lower than those maintained by the defendants by rail. We have used San Francisco as the destination port on the Pacific coast, and in some instances rates from New York to San Francisco are a trifle lower than to other coast cities, but, generally speaking, the San Francisco rate is maintained at Los Angeles, Portland, Seattle, Tacoma, and other points upon the coast.

It is said that the amount of the movement by water is so insignificant that it should be disregarded. The amount is not insignificant. If reference be had to the traffic which actually originates upon the Atlantic seaboard a considerable percentage moves by water, but the significant thing is not the amount of the movement, but the ever-present possibility of that movement.

The carriers have met this competitive situation by establishing from the Atlantic seaboard to Pacific coast ports a series of commodity rates. Rates to interior points are usually constructed by adding the local rate from the terminal to the interior. This is not so in all cases. It was said, for example, that rates from the east to Spokane were higher than the coast rate by about 75 per cent. of the local back. In all cases, however, the rate from all this blanketed territory to the interior point is very much higher than to the more distant coast point.

Now, assuming that there is actual water competition with these defendants may meet, is there anything in this scheme of transcontinental rate making of which Spokane can legitimately complain? The question is not whether rates from the Missouri river or from other eastern points of origin to Spokane are excessive. That question has been considered and passed on by the commission. We are now inquiring whether the system upon which these rates are constructed is unlawful, and whether any substantial relief should be or can be given by an order under the fourth section.

The complainants contend in the first place that the terminal rates are themselves sufficiently high and that intermediate rates for a less service ought not to be higher. If, therefore, the fourth section were to be applied, having reference to this contention of the complainants alone, we must hold that from the Missouri river and corresponding territory no higher rate should be charged to Spokane and Spokane territory than to the coast, but that from Chicago and territory east of the Missouri river generally a higher intermediate charge might be made.

The next contention of the complainants is that even though there be water competition between the Atlantic seaboard and the Pacific coast and even though the force of that competition does dictate the rate between those points, nevertheless there is no such competition from the interior, as, for example, from Chicago, and that therefore while the defendants may properly charge a higher rate from New York to Spokane than the corresponding rate to Seattle, they can not properly maintain this discrimination when the point of origin is Chicago.

Everything indicates that the effect of this water competition will increase rather than diminish from now until the completion of the Panama canal and when that waterway is open for business both rate and facility will be very much better than today. It is true, however, that carriers maintain the same transcontinental rate from Chicago as from New York, not by reason of the direct effect, but rather as an indirect result of water competition.

There is in this same connection market competition proper. Chicago, with all its political and financial strength, demands that it shall be accorded the same right to sell in San Francisco which its rival New York has. Its argument is this: If this traffic moves by rail from New York, it passes through Chicago, and is hauled 1,000 miles farther than as though it originated at Chicago. If it originates at Chicago there is eliminated from the service the useless waste of energy involved in transporting the business for the first 1,000 miles. Therefore, if this traffic is to move by rail such a rate should be made as will move it from Chicago and not from New York.

And why is not this argument a sound one, at least if reference be had entirely to eastern territory? It is for the interest of Chicago that it be allowed to sell in San Francisco; it is in the interest of San Francisco that it be allowed to buy in both Chicago and New York. It is in the interest of the carriers, considered as a whole, that the business originate at the nearer point and that is the just interest of the public to the end that useless waste be avoided. New York and the lines leading from New York to Chicago alone suffer.

Considering this question broadly and in all its aspects we cannot say that the legitimate effect of water competition upon the Atlantic seaboard may not be to reduce the rail rate from interior points.

The third claim of the complainants is that while the defendants recognize upon the Atlantic seaboard the force of competition in its various forms, hereinbefore stated, they decline to do so upon the Pacific coast. While they extend the New York rate to Chicago and the Missouri river they decline to extend the Seattle rate to Spokane although every reason which justifies that in the former case requires it in the latter. Just as traffic can be and occasionally is carried by rail from Chicago to New York and thence by water to San Francisco, so is traffic at times and indeed much more frequently handled from New York to Seattle by water and from Seattle to Spokane by rail. If the application of the transcontinental rate from Chicago is necessary to prevent the movement by water from Chicago through New York, all the more is the application of that rate from New York to Spokane necessary to prevent the movement of traffic from New York to Seattle and from Seattle to Spokane.

Spokane is a great distributing center and aims to be a greater one. It demands the right to rates which will enable it to bring from the east and distribute into territory lying east of the Cascade range. Such traffic, when distributed from Spokane, is hauled a less distance by 400 miles than when distributed from Seattle, and the distribution haul itself is also much less expensive. It is a manifest economic waste to haul traffic over the Cascade mountains and back again.

Admitting, however, that it is for these defendants to say to what extent if at all they will meet these competitive conditions, they are not at liberty, in meeting them, to adopt such a policy, nor to execute the policy adopted in such a manner as to unjustly discriminate between different localities. For the purpose of disposing of this matter by an order under the fourth section, we have divided the United States into five territorial zones, as follows:

(The transcontinental groups hereinafter described are as specified in R. H. Countiss, agent's, transcontinental tariff I. C. C. No. 929.)

Zone No. 1 comprises all that portion of the United States lying west of a line called line No. 1, which extends in a general southerly direction from a point immediately east of Grand Portage, Minn.; thence southwesterly, along the northwestern shore of Lake Superior, to a point immediately east of Superior, Wis.; thence southerly, along the eastern boundtary of transcontinental group F, to the intersection of the Arkansas and Oklahoma state line; thence along the west side of the Kansas City Southern to the gulf of Mexico.

Zone No. 2 embraces all territory in the United States lying east of line No. 1 and west of a line called line No. 2, which

begins at the international boundary between the United States and Canada, immediately west of Cockburn Island, in Lake Huron; passes westerly through the Straits of Mackinaw; southerly, through Lake Michigan to its southern boundary; follows the west boundary of transcontinental group C to Paducah, Ky.; thence follows the east side of the Illinois Central Railroad to the southern boundary of transcontinental group C; thence follows the east boundary of group C to the Gulf of Mexico.

Zone No. 3 embraces all territory in the United States lying east of line No. 2 and north of the south boundary of transcontinental group C and west of line No. 3, which is the Buffalo-Pittsburg line from Buffalo, N. Y., to Wheeling, W. Va.; thence follows the Ohio River to Huntington, W. Va.

Zone No. 4 embraces all territory in the United States east of line No. 3 and north of the south boundary of transcontinental group C.

Zone No. 5 embraces all territory south and east of transcontinental group C.

We are of the opinion that from zone 1 no higher charge can justly be made at any intermediate point than to a more distant point. The eastern limit of this territory is approximately 1,500 miles from the Atlantic seaboard, almost midway between the Pacific and Atlantic oceans. No traffic has ever been, and none probably ever will be transported from this section to the Atlantic coast and then by water to the Pacific coast.

With respect to territory embraced in zone 2 the case stands somewhat different. This zone comprises the Mississippi valley and a considerable portion of the great manufacturing area of the west. It lies 400 miles nearer the Atlantic seaboard, with which it is connected in part at least by lines of railroad affording the cheapest transportation service in any part of the country. Still there never has been and there probably never will be in the future any considerable movement of traffic from this territory to the Pacific coast by way of the Atlantic seaboard.

We are of the opinion that rates from this territory to intermediate points may properly exceed by not more than 7 per cent. rates from the same points of origin to Pacific coast terminals.

From zone 3 there is still greater possibility of actual transportation competition on business destined to Pacific coast points, although from this section hitherto the actual movement has been only occasional.

We are of the opinion that from points of origin in this territory rates to intermediate points may properly exceed those to terminal points by not more than 15 per cent.

In the past the actual movement from eastern points of origin to Pacific coast terminals has been mainly confined to zone 4, and even in this zone the greater part of the traffic has originated in or near the seaboard itself.

The force of water competition is greatest at New York and gradually diminishes as the distance from New York increases, but we are of the opinion that this entire territory may properly be treated as a single group, and that rates from points of origin within its limits to intermediate points may properly exceed those of terminal points by not more than 25 per cent.

No opinion is expressed at this time as to zone 5, since rates from that territory are not involved in these proceedings.

An order will be entered, effective November 15, denying the application of the carriers, except that the charging of higher intermediate rates will be permitted in accordance with the above findings.

There is no essential difference between this order and an order which the commission might make under the third section.

We do not think that any further order should be made for the present in this case. It may be asked why the schedule of rates suggested by the commission as reasonable should not be ordered in. The answer is that carriers should be permitted insofar as possible to adjust their own tariffs and that it seems probable that in compliance with this order carriers must establish rates in substantial accord with those suggested by us. It should be ever borne in mind that the acute complaint in this case is the discrimination and not the unreasonable rate.

EARNINGS OF RAILWAY EMPLOYEES FOR THE YEARS 1900 TO 1910.*

The total compensation of railway employees, exclusive of general officers, increased from a little over half a billion dollars in 1900 to $972,000,000 in 1909, or an increase of 72.3 per cent. In 1907 the total compensation was over a billion dollars. Aggregate labor compensation amounts to nearly three-fifths of the total operating expenses. If account were taken of wages represented in materials and supplies purchased by railways, probably not less than four-fifths of the money spent for railway operation would resolve itself into salaries and wages. It is significant that during the nine years, 1900 to 1909, when operating expenses increased about 77 per cent., labor compensation continued to claim the same share of total expenditure. Whether this relationship will continue is a question that cannot be answered without more exhaustive study than has been possible in this report. However, one conclusion seems warranted. In the absence of offsetting increases in rates of pay, a liberal maintenance policy tends to lower the proportion that labor secures directly of total outlay for railway operation, because it means a relatively larger expenditure for materials.

While the per cent. that aggregate labor compensation is of total operating expense may for the railways of the United States as a whole be relatively invariable, yet an investigation of the figures of individual roads shows that this figure for the United States is the average of a mass of widely varying percentages on individual railway systems, and that these variations are due to no one cause. Labor cost is a variable quantity in the midst of other variables, and its relation to the other factors depends on a number of causes (such, for example, as increased expenditure for materials used in maintenance), working with more or less effect on different railway systems.

Labor obtains about 40 per cent. of the gross receipts of railways from their transportation service. This percentage does not vary materially from year to year for the United States as a whole, but there is no such close correspondence if individual roads are considered. Differences of accounting method, differences in maintenance policy, differences in rates of pay, and differences in operating efficiency have their influence, varying in degree on different roads.

Revenues per traffic unit (ton miles plus passenger-miles) increased 3.8 per cent. during the years 1900 to 1909, the increase being entirely in revenue per ton mile. Labor compensation per traffic unit increased 9.5 per cent. during the period, and there were three years, 1904, 1907, and 1908, in which the figure exceeded that for 1909.

Of the fifteen roads whose accounts have been studied, ten show a very definite increase in compensation per traffic unit, and in two of the remaining five the compensation per traffic unit has had a tendency to remain stable during the decade rather than to decline. It must be concluded either that the railways are being maintained and operated with steadily decreasing efficiency, or, as is the fact, that the rates of pay for railway labor have increased.

This increase in compensation per traffic unit is most significant. It is an axiom of railway operation that if the plant is not working to its full capacity an increase of traffic will be

*Prepared by the Bureau of Railway Economics; published with Bulletin No. 16.

accompanied by no corresponding increase in expense. While labor is not one of the invariable elements of expense, yet it would probably be granted that, other conditions remaining the same (and this includes rates of pay), labor cost should not increase so rapidly as traffic. But during these ten years, not only is there an increase in labor compensation equal to the growth in traffic, but an even more rapid increase.

Because of the varying methods used on different railways for reporting wage statistics, comparisons can be made only in a general way between different railways, but comparisons from year to year on individual roads will be valid, provided the methods used by each road remain the same.

Taking the United States as a whole, the most numerous group of employees is found to be those engaged in conducting transportation, amounting to 40 per cent. of the total number. Of the individual classes of employees, "other trackmen" contain by far the largest number, the proportion reaching 21 per cent. in 1909. Omitting the class, "all other employees and laborers," "other shopmen" come second, with about 13 per cent. The variations in percentages are not large from year to year. General office clerks have steadily increased their proportion and "switch-tenders and watchmen" have shown a steady decline relative to the other classes. Statistics seem to indicate that in years of retrenchment the discharge of men effects most of the important classes of labor. Certain classes, such as station agents and telegraph operators, are hardly affected at all by years of depression.

For the United States as a whole, and for every one of the groups, the three highest paid classes of employees are, in order, the enginemen, conductors and machinists. "Other trackmen" are the lowest paid. "Switch-tenders and watchmen" and "other station men" are classes also showing low rates of pay. Among the other classes there are many variations among the groups, but differences in methods of computation prevent any close comparisons.

For the fifteen individual roads subjected to study, the conclusions generally correspond to those just stated. There are some unexpected variations, but these may well be due to differences in methods of computation employed by different roads.

For the United States as a whole there has been a steady increase in average daily earnings of employees since 1897. As there has been no marked change in the proportions of the numbers employed in the different classes, this increase in the average can only be attributed to the increase in the rate of pay. "Other trainmen" show an increase in average daily earnings of 33.5 per cent., machinists of 30.1 per cent., firemen of 27.1 per cent. General office clerks show an increase of only 5 per cent., and switch-tenders an actual decline. The interstate commerce groups show results in many cases quite different from the averages for the United States. Thus in group IV the class showing the largest increase in daily earnings is the carpenters, in group V, the station agents, and in group VII, the firemen. The variations are still greater when the fifteen separate roads are considered, yet to ascertain accurately the causes of these individual variations would require a special inquiry in each case into methods of wage compilation, the peculiar situation of the different classes of employees, the strength of the demand made for increases by employees and the policy of the railway management.

For the United States as a whole the compensation of the various classes of trainmen has in most cases increased as rapidly as revenue per train mile, and in some cases much more rapidly. Thus, while revenue per train mile was 32.6 per cent. higher in 1909 than in 1900, conductors' compensation per train mile was 37.8 per cent. higher, other trainmen's 59.5 per cent., enginemen's 24.1 per cent., and firemen's 30.4 per cent. Of the fifteen roads examined separately, increase in compensation per train mile exceeded the increase in revenue per train mile for engineers on six roads, for firemen and conductors on eight roads, and for "other trainmen" on thirteen roads.

There has been no uniform increase in locomotive tractive power on different railways that correspond with the demand for hauling facilities, and hence the relation of labor compensation to this increase in tractive power cannot be established without detailed investigation. During the years 1902 to 1909, total tractive power increased 99 per cent., average tractive power 30 per cent., average daily earnings of enginemen 16 per cent., and of firemen 21 per cent.

Making due allowance for unsatisfactory price statistics, it appears that in 1907, the last year for which retail food prices are available, all classes of employees, except enginemen, carpenters and section foremen, show an increase in wages for the period 1892 to 1907, either in excess of the increase in cost of food or practically equivalent to it. For the period 1892-1909, the increase in wholesale prices, amounting to 30.3 per cent., was exceeded by that of two classes, "other trainmen" and "machinists," and equalled by "firemen." All other classes fall below this increase. For the fifteen roads, taken together, the increase in average daily earnings of employees, 1901-1910, was in excess of the increase in wholesale prices.

Comparing earnings of employees with ton-mile revenue for the years 1900 to 1909, it will be observed that the employee's ability to purchase ton-miles has increased about 13 per cent. In other words, assuming the number of employees to remain stationary, the railways were obliged to handle 13 per cent. more ton-miles in 1909 than in 1900 in order to pay the wages of their employees.

The purpose of this section of the study is to make clear the unsatisfactory character of the available statistical information and the impracticability of an attempt at a comparison with railway wages.

The considerations upon which this conclusion rests may be briefly summarized as follows:

1. Tabulations of wage statistics by different governmental agencies are based upon different methods of compilation.

2. Comparisons are disturbed by the varying proportions in different industries of skilled and unskilled labor, as well as by the geographical location of the industry.

3. The character of work differs, in different industries, in the same classes of labor.

4. Comparisons are affected by the degree of unemployment in different industries.

5. Statistical compilations are frequently inadequate because they relate to but a single year.

6. Railways employ different methods of compilation in the tabulation of wage statistics.

Plans are in hand for the completion of the Matadi-Leopoldville Railway, Congo. This line is the sole connecting link between upper and lower Congo. River communication on the Congo is completely cut off by the falls extending north of Matadi for 225 miles, while the overland caravan route is very difficult. Before the advent of the railway the journey by the caravan route, barely 250 miles in length, between Matadi and Stanleypool occupied 20 days and entailed great loss of life, while the cost was some $10 per load of 65 to 75 lbs. By the railway the journey is made in two days, and the cost of transporting such a load is a little over 10 cents. The railway, 250 miles long and built at a cost of $15,767,500, is a narrow-gage single-track line, with 99 bridges, all but one being constructed of iron. The line leaves the south bank of the Congo river at Matadi, 100 miles from the mouth, and meets the river again at Dolo, on the Stanleypool, some 7 miles above Leopoldville, to which town it runs down the bank of the river through Kinchasa, where there is an excellent harbor. Leopoldville harbor is dangerous, owing to the vicinity of the rocky reef at Kallina Point and of cataracts. The direction of the operation of the railway is, of course, in charge of white men.

A PRACTICAL DEMONSTRATION IN FUEL ECONOMY.

The Lehigh Valley recently made a fuel test on its class F-6 Atlantic type locomotive No. 2475, between Buffalo, N. Y., and Jersey City, N. J., to give its enginemen and firemen an object lesson in fuel economy. The locomotive is one of five of the same type which was designed in the office of the mechanical engineer of this road and made in its shops at Sayre, Pa., being placed in service in November, 1910. The company has furnished a report of which the following statement is an abstract.

The test was made on June 21, with John Corey, engineman, and Frank Pettit, fireman, handling the engine, which left Buffalo on train No. 4, at 9:58 a. m., and consisted of 10 cars. The same locomotive made the entire run of 446.6 miles with the same crew; the regular crews east of Sayre acted as pilots over their divisions, as Corey and Pettit were not familiar with that part of the road. The following table gives the weight of the train and the distance each weight has hauled:

Stations.	Miles Run.	Cars Hauled.	Tons Behind Tender.	Car Miles.	Ton Miles.
Buffalo to Bethlehem....	359	10	560	3,590	201,040
Bethlehem to Easton....	11.6	8	433	92.8	5,022.8
Easton to Jersey City...	76	7	372.8	532	28,332.8
Total	446.6	..	.....	4,214.8	234,395.6

The engine took water eight times, but was supplied with sufficient coal at the start to make the whole run, the total amount used being 30,070 lbs. A helping locomotive assisted the train from Wilkes-Barre, Pa., to Fairview, 16.3 miles, with a 1.8 per cent. grade; this is the usual practice. The weather was clear, the average temperature was 80 deg., the wind was light and the rail good. Thirty-one stops were made in the whole trip of 12 hours and 3 minutes, which was only 6 minutes over the scheduled time. The actual running time, deducting stops, was 10 hours and 40 minutes, which made an average speed of 41.8 m. p. h. A remarkable feature in the test is that the fire was not cleaned nor even raked during the whole trip and the grates were only slightly shaken six times.

The average boiler pressure throughout the run was 195 lbs., the minimum being 190 lbs. The coal used was shown to be 0.128 lbs. per ton mile and 48.94 lbs. per square foot of grate surface per hour. The following table gives a comparison of some of the figures taken from this test run and corresponding figures for the year ending June, 1910:

	Coal per pass. train mile.	Coal per pass. car mile.	Shovels full per mile at 14 lbs.
Train 4, June 21, 1911....	67.33 lbs.	7.134 lbs.	4.8
Average, 1910	132.2 lbs.	24.4 lbs.	9.4

This table indicates what can be done by an engineman and a fireman. The total amount of coal used, as previously stated, was only 15 tons and 70 lbs., where as the usual amount of coal used on this same run varies from 25 to 30 tons. The money expended yearly for locomotive fuel on the Lehigh Valley is one of its largest single expense items; for the year ended June, 1910, it was about $3,000,000. The coal during that time was handled by 1,000 firemen, or each fireman handled $3,000 worth of coal. If each engineer and fireman would operate the locomotive so as to use about two less shovelsfull of coal per mile, it would mean a reduction of some $200,000 in the yearly cost of fuel. However, this saving cannot be done by one man alone; it requires the united effort of the whole number of firemen and engineers. The following table gives the principal dimensions and ratios of the locomotive used in the test:

General Data.

Type	4-4-2
Service	Passenger
Fuel	Bit. coal
Tractive effort	25,300 lbs.
Weight on drivers	99,700 lbs.
Weight of engine and tender in working order	303,100 lbs.
Wheel base, driving	6 ft. 11 in.
Wheel base, total	25 ft. 8 in.

Ratios.

Weight on drivers ÷ tractive effort	3.94
Tractive effort x diam. drivers ÷ heating surface	586.
Total heating surface ÷ grate area	64.9
Firebox heating surface ÷ total heating surface, per cent.	4.81
Weight on drivers ÷ total heating surface	30.
Volume both cylinders, cu. ft.	10.40
Total heating surface ÷ vol. cylinders	320
Grate area ÷ vol. cylinders	4.92

Cylinders.

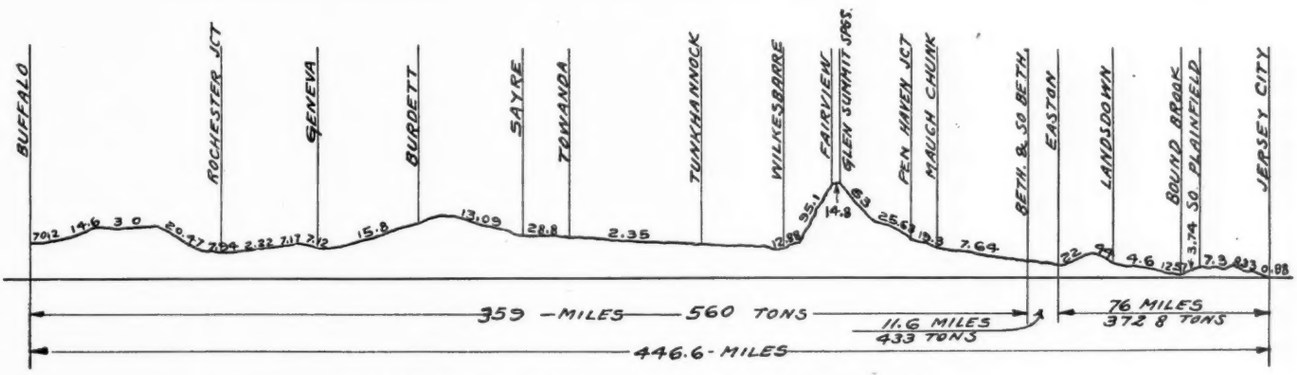
Kind	Simple
Diameter	21 in.
Stroke	26 in.

Wheels.

Driving, diameter over tire	77 in.
Engine truck, diameter	36 in.
Trailing truck, diameter	56 in.

Boiler.

Style	Straight
Working pressure	200 lbs.
Outside diameter of first ring	70¼ in.
Firebox	Semi-wide
Tubes, number	374
Tubes, length	16 ft. 2 in.
Heating surface, tubes	3,164 sq. ft.
Heating surface, firebox	160 sq. ft.
Heating surface, total	3,324 sq. ft.
Grate area	51.2 sq. ft.
Center boiler, above rail	9 ft. 11 in.
Top smokestack, above rail	15 ft. 4⅛ in.



Lehigh Valley Profile, Buffalo, N. Y., to Jersey City, N. J.

JAPAN'S NEW CENTRAL RAILWAY.

The completion of the last section (about 50 miles) of the western division of the Central Railway line, and the opening of the whole road to traffic on May 1, was celebrated at Nagoya. This division follows an old Daimyo road called the Nakasendo. The Central Railway runs from Tokyo to Nagoya, through the central provinces of Kai, Shinano and Mino, thus opening up entirely new territory, the communication between these cities having been heretofore carried on by the Tokaido Railway, which follows close along the eastern coast, being also an old Daimyo road of the same name. The distance between Tokyo and Nagoya is slightly less by the Central than by the Tokaido line, but as express trains will not be run for the present on the new

line, through passenger traffic will continue to follow the old route for some time to come. The new line, however, will undoubtedly become a favorite, especially with tourists, as it runs through some of the most beautiful and interesting scenery in Japan. The government's chief object in the construction of this line is undertsood to be military, but at the same time it will greatly facilitate intercourse between several important and heretofore inaccessible and outlying districts, and is especially expected to exert a very favorable influence in the business of Osaka. Formerly freight sent to and from that city and the central provinces and Echigo had to go all the way round by Tokyo, but now the new line makes a great reduction in distance and in rates. Articles sent to the indicated provinces from Osaka comprise fish, cotton cloths, cotton yarns, fertilizer, ironware, dyes and colors, ame, sugar and zinc sheets. The cost of construction of the 225 miles amounted to $17,500,000. The 95 tunnels total 113,378 ft., the average cost being $45.62 per foot. The Sasago tunnel, the longest in Japan, is over two miles, 71 chains.

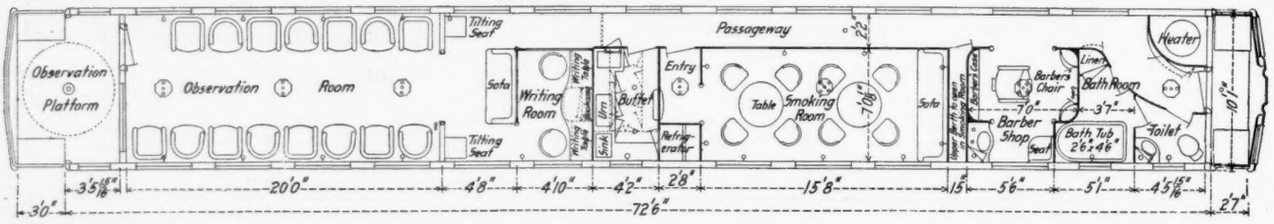
The 351 bridges have a total length of 24,265 ft. It is estimated that these 351 bridges were built at an average cost of $85.09 per foot.

OBSERVATION-BUFFET CARS; CHICAGO, MILWAUKEE & ST. PAUL.

An order of steel cars, which includes observation-buffet cars, compartment and tourist sleepers, combination mail and express cars, and baggage cars, has recently been filled by the Barney & Smith Car Company, Dayton, Ohio, for the Chicago, Milwaukee & St. Paul. A large number of these cars are to be used on the Chicago, Milwaukee & Puget Sound, and are so lettered. The underframing, superstructure framing, exterior sheathing and roof of these cars consist entirely of steel, the interior finish is of wood, thereby incorporating the important features of safety and serviceability incidental to steel construction with the advantages that go with the wood interior finish, such as comfort and the opportunity afforded for decoration. As these cars are practically alike in their structural details, the following description of the observation-buffet cars will serve to give a general idea of the equipment.

The cars are 72 ft. 6 in. over end sills and 10 ft. 1 in. wide outside of the sheathing. The underframe is built up of steel plates and shapes in conjunction with combined cast steel body bolsters and platforms. The center sills are two plate girders of the fish-belly type with 5/16-in. web plates, top and bottom angles, and a top cover plate. They are 30 in. deep between the needle beams, tapering toward the cast steel bolsters, to which they are riveted. There are 4 needle beams of a built-up construction having 5/16-in. web plates, top and bottom angles, and top and bottom cover plates. These needle beams are connected to the side and center sills by angles. The longitudinal floor supports are 3-in. channels, and the cross floor supports are 4-in. channels spaced at suitable intervals. The flooring consists of 5/64-in. sheet steel riveted to the floor supports and cross channels. Over this is laid 1 in. of hair felt insulation, No. 20 Keystone corrugated steel flooring, and then over that is laid a layer of a composition flooring—Karbolith.

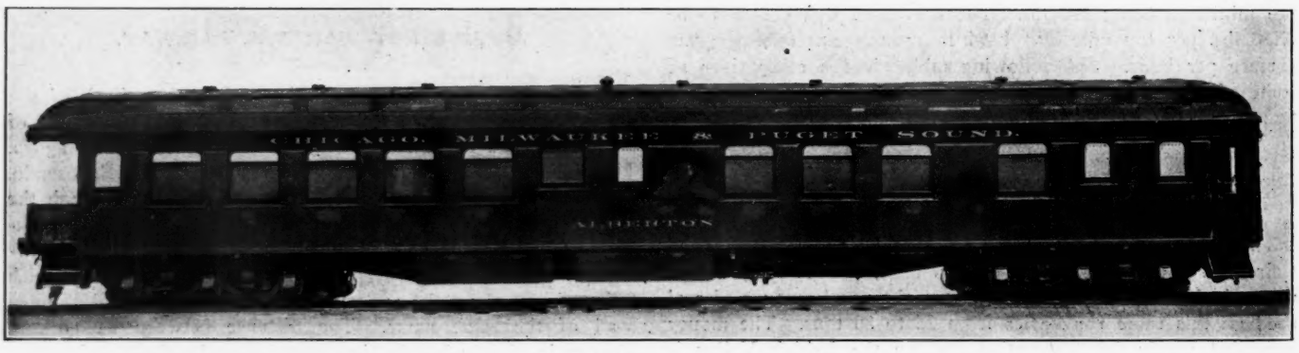
The side framing is constructed of 3/16-in. pressed steel Z-bar shaped side posts with ⅛-in. steel sheathing, which forms the web of a plate girder, the side sill angles being the bottom member of a 4 in. x ¾-in. steel belt rail bar the top member. The body corner posts are 5/16-in. pressed steel shapes, and the vestibule corner posts are of ⅜-in. pressed steel. The side plate is a 6-in. channel; the end plate is of ⅜-in. steel; and the deck sides are of ⅛-in. steel plate pressed to shape and running the full length of the car, with openings for the deck sash. The deck posts, carlines, etc., are pressed steel shapes, and the roof and hood covering are sheet steel. The cars have the Barney & Smith anti-telescoping end framing of Z-bar construction, and are well insulated throughout between the inside finish and the steel exterior.



Plan of Observation-Buffet Car for the Chicago, Milwaukee & Puget Sound.

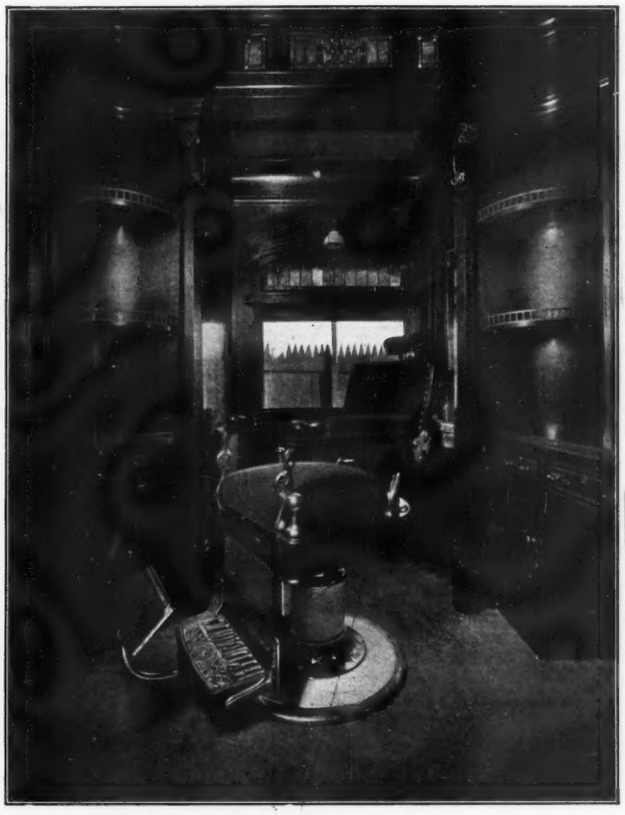
The accompanying illustrations show the interior appearance of the cars. The wood for the interior finish is Cuban mahogany inlaid with figures in marquetry, this being of different designs to harmonize with the character of the finish in the different compartments. All the marquetry has special treatment to preserve the natural colors of the wood, which gives a clear-cut contrast and naturalness to it.

The cars are equipped with Pintsch gas and the dynamo system of electric lighting, the lighting fixtures being of attractive designs. The ceilings are beautifully tinted. Art and leaded glass is used for the inside windows, the deck sash, the par-

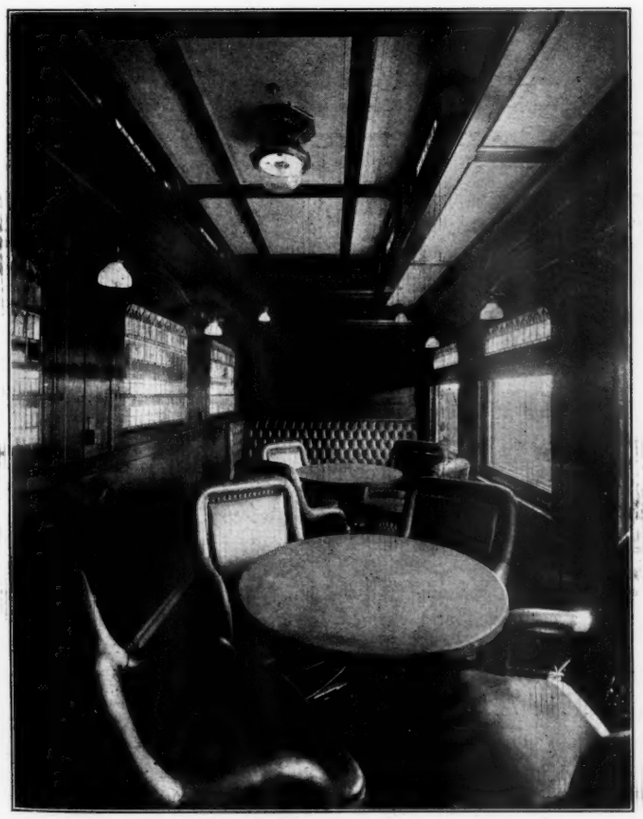


Observation-Buffet Car; Chicago, Milwaukee & Puget Sound.

Steel Framing for Observation-Buffet Car.



Barber Shop; Observation-Buffet Car.



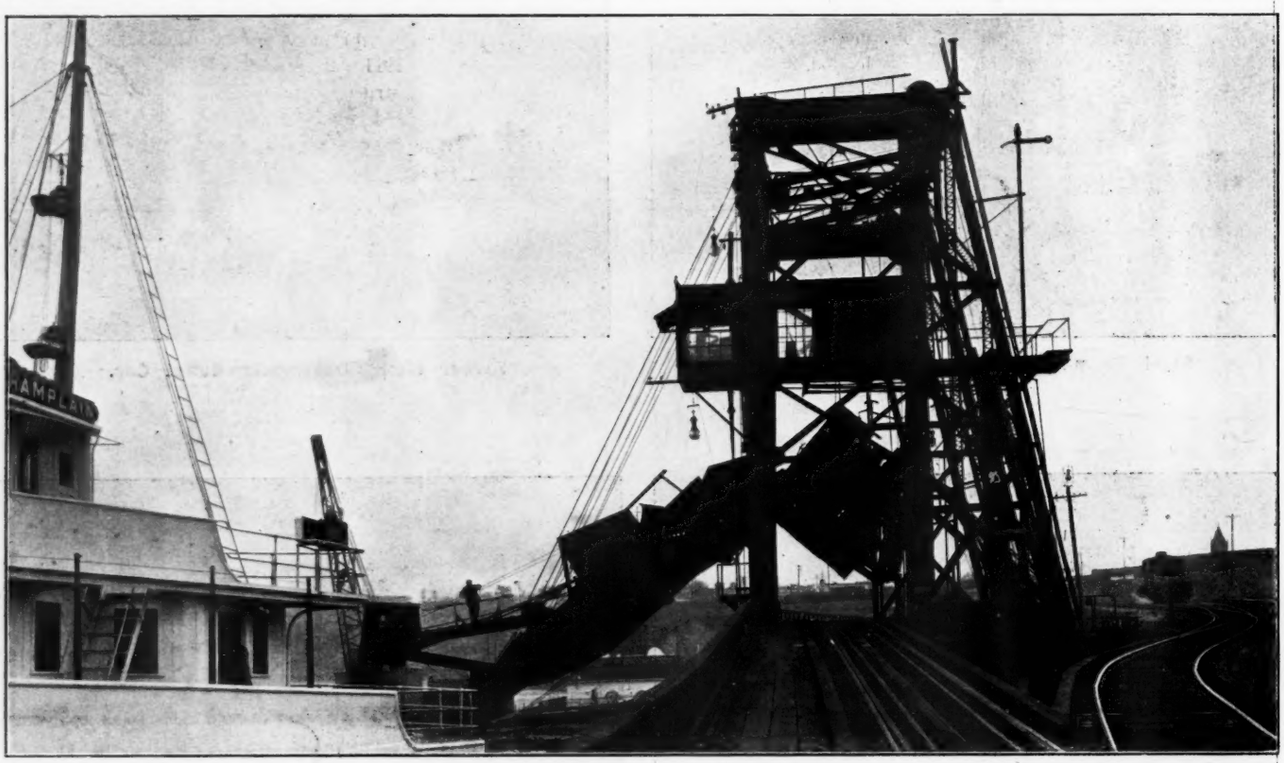
Smoking Room; Observation-Buffet Car.

Observation Room; Observation-Buffet Car.

tition dividing the smoking room and the passageway, and the partition enclosing the writing room. The exteriors of the cars have an unusually neat appearance for this type of equipment, because of the absence of rivet heads in connection with the letter boards and outside surface of the side posts above the window stooling. The interior arrangement, as will be seen from accompanying plan, includes an observation room with an observation platform, writing room, with writing tables and book case, smoking room, bath room, barber shop and buffet, all equipped with every possible convenience.

COAL AND ORE DOCKS OF THE BALTIMORE & OHIO AT LORAIN, OHIO.

The Baltimore & Ohio operates docks at Lorain, Fairport, Sandusky and Cleveland, on lake Erie; and with the addition of three improved ore-handling machines recently put into service at Lorain, the ore and coal docks there are among the



McMyler Unloading Machine, Unloading Car of Coal.

largest on the Great Lakes. Over the docks at Lorain the coal from the West Virginia and the southeastern Ohio fields is handled. Last year more than 2,750,000 tons of coal were loaded into the lake steamers at that port. At Fairport the coal from the Pennsylvania fields is handled exclusively, and, though the business in coal is not as extensive as at Lorain, the handling of ore exceeds the latter point in quantity.

In the yard at Lorain about 500 cars of coal are received daily. It is a gravity yard, so arranged that the cars may be assorted and placed on feed tracks on which they run by gravity to the machines for unloading the coal from cars into the vessels. There are two coal unloading machines in the terminal, each having four feed tracks of 50 cars capacity leading to it and two tracks for empty cars, with a capacity of 25 cars each.

The two McMyler unloading machines are situated directly on the waterfront of Black river, at a point near which the river empties into the lake, permitting the large steamers to tie up alongside of them and take on their cargoes. As the car drifts through the yard by gravity and approaches the unloader it is passed under a waterspout which sprinkles the coal and settles the dust preparatory to loading in the vessels. Reaching the unloader, the car is secured to the tracks by large steel clamps, which work automatically, then the big 30-ton steel car loaded with 50 tons of coal is turned over bodily, as shown in the accompanying photograph and the contents dumped into the vessel. The machinery is all controlled by an operator in the tower of the unloader. These machines each have an average unloading capacity of 1,000 tons an hour, which means that each machine can load a large steamer in 10 hours, making the total capacity of the docks four boats a day, working day and night shifts, as is the practice during the busy season. The record performance of the larger machine is 46 50-ton cars, or 2,350 tons in an hour. After the coal has been unloaded the cars are returned by gravity to the yard level and are then placed in the ore yard ready for loading. The whole movement is timed so that while one car is being dumped another is approaching by gravity and arrives at the unloading table just in time to start the empty car on its return trip.

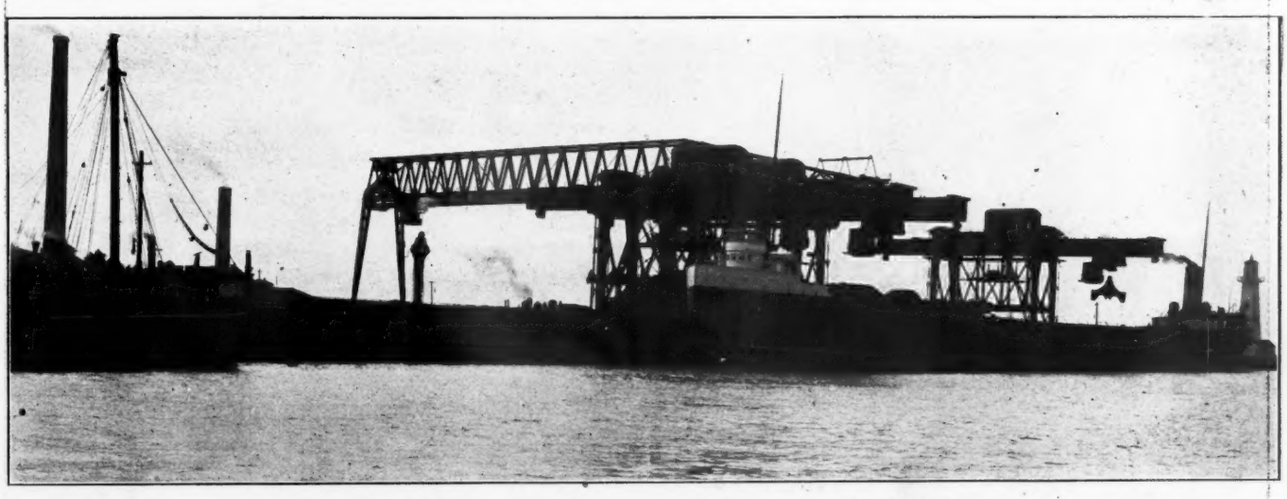
Arriving at Lorain with their cargoes of ore, the steamers tie up at the docks to unload the ore for transshipment by rail. The new machinery for unloading the steamers is the latest design of Brown hoist unloader, driven by electricity and equipped with three grab buckets having a total capacity of 1,000 tons of ore an hour.

These grab buckets scoop up from 7 to 10 tons of ore each time they are lowered into the hold of the vessels, after which they are hoisted and carried in over the dock on a movable girder, or ram, carried in a heavily braced portal frame, which is itself movable lengthwise of the dock. The rams are a distinctive feature of the unloaders, replacing the hinged boom which is arranged to be lowered over vessels in the Brown hoist machines hitherto constructed. The buckets may either be dumped into a 75-ton weighing hopper, from which the ore is discharged directly into cars on any one of the four tracks spanned by the unloader or dropped in the trough space, which

has a capacity of 100,000 tons, and is separated by a concrete wall from the tracks. Once deposited in the trough, the ore may either remain in temporary storage, or be conveyed to the larger storage space covered by the ore bridge.

This bridge is an immense gantry crane carrying a grab bucket of 10 tons capacity by an electric trolley traveling on a track 85 ft. above the ore floor. The main span of the bridge, 250 ft. in length, spans the principal storage floor, while a cantilever arm of 144 ft. extending toward the dock front commands the trough space back of the unloaders and also extends over the rear unloader wall and the track next to it on the dock side. All ore deposited in storage by the unloaders or the bridge may be picked up by the bridge bucket and reloaded on cars on either of two tracks through a weighing hopper similar to the weighing devices on the unloader. In fact, these arrangements for weighing ore direct into cars on all tracks commanded by the machines are believed to be the most complete so far installed at any dock. By their use, each car may be loaded to its exact capacity and leave the dock billed for the road without expensive delays for switching over yard scales, or the necessity of being returned to the dock to be lightened or loaded, accordingly as over or under loaded.

The combination of fast unloading plants on the dock front with buckets moving at high speed over a short travel, with a storage bridge of long space, carrying a larger bucket over the storage space is found on all modern lake docks. It has been found that the disadvantage of rehandling is more than counterbalanced by the increased efficiency of the dock machines. At the Lorain dock, the rehandling bridge has a capacity of 600 tons per hour, or 60 per cent. that of the unloaders taken together. This is estimated to be ample, as 40 per cent. of the ore received at the dock is, on the average, storage ore, while 60 per cent. goes direct in cars to the furnaces.



General View of Ore Unloader with Steamer at the Dock.

The construction of a permanent dock and track to carry the extreme wheel loads of the unloader trucks (96,000 lbs. per wheel on eight wheels each) presented special difficulties. Test drillings showed shale at depths from 18 to 24 ft. below mean lake level at the dock line. Two previous attempts to build a pile and timber dock on the site had failed, owing to insufficient penetration of the piles along a channel dredged to 21 ft. depth. It was decided to use timber cribs filled with stone and capped with monolithic concrete similar to the adjoining U. S. government pier. The contract was awarded James Stewart & Co., of New York, for the removal of old work and construction of 845 lin. ft. of this dock; also for four monolithic concrete walls on piling or reinforced concrete footings to carry the machine tracks back of the dock face and including 250,000 sq. ft. of oak plank flooring on the ore storage space. On account of anticipated settlement of the timber cribs, it was decided later to substitute a temporary timber superstructure to carry the dock front track, with the intention of substituting concrete later. Experience has justified this arrangement, as a settlement of 4 to 6 in., and a movement of 2 to 3 in. has occurred. This has been easily adjusted by shimming and shifting the temporary superstructure, but would have been disastrous to a concrete dock.

In all 17 cribs of 12 in. x 12 in. hemlock timber, about 20 ft. x 22 ft. x 48 ft., faced with 3 in. oak plank were sunk in the dock front. Each was secured against movement toward the river by 2 in. rods leading to a series of pile anchors, and by a line of 10 in. I-beams, 36 ft. in length, set 8 ft. center to center in front of the cribs in holes drilled in the shale bottom. In addition, 2,900 lin. ft. of track wall was built, requiring 7,500 cu. yds. concrete and 40,000 lin. ft. of piling. Sufficient dock and substructure walls were finished in November, 1910, to permit the Brown Hoisting Machinery Company to commence the erection of steel work, and May 1, 1911, the railway company's operators were placed on the machines which handled their first cargo of ore, May 22, 1911. Provision has been made for future development by so constructing the bridge that a rear cantilever of 150 ft. can be added when required, increasing the travel of the bucket by that distance; also by extension of the track walls out into the lake 500 ft. to the recently established U. S. harbor line; the bridge travel will be increased by that distance, doubling the storage area commanded by the bridge.

The ore received on the docks at Lorain and Fairport is distributed by the Baltimore & Ohio to the large steel mills and industrial plants in the Pittsburgh and Wheeling districts, and the Mahoning and Shenango valleys.

The power station which supplies electric power for the operation of the ore handling apparatus is located about 600 ft. from the ore machinery on the dock. The building is 73 ft. x 121 ft., with concrete foundations and side walls up to the level of the reinforced concrete engine room floor, the balance of the walls being of brick and the roof of reinforced concrete slabs carried on I-beam girders. Monolithic concrete foundations were provided for three Buckeye engine sets and for a 175 ft. stack constructed by the Alphons Custodis Chimney Construction Company. The power house and accessories, including concrete coal bunkers, 30 in. cast iron pipe inlet from the river and discharge line to the lake, electric ducts, etc., were constructed by P. Farrell, Cincinnati, Ohio. On account of the prominent location of the building near the Lorain water works, particular attention was given to securing a neat exterior finish. The plans were prepared by the architect for the B. & O.

The plant is equipped with five 250 h. p. B. & W. vertical

header, water tube boilers, operating under 150 lbs. pressure, arranged in batteries of two. Provision has been made for the future installation of three additional boilers, making a total of four batteries with a boiler capacity of 2,000 h. p., and an overload capacity of 50 per cent., providing, if necessary, 3,000 h. p. output.

The generating equipment of the plant consists of two 500-k. w., Westinghouse, 250 volt, direct current compound wound generators, with interpole windings, direct connected to two 1,040 h. p. cross compound 24 in. x 42 in. x 36 in. Buckeye engines, each being equipped with an extra heavy flywheel weighing 25 tons, capable of storing sufficient energy to maintain practically constant speed and voltage, even though subjected to sudden and violent overloads, such as occur when all the ore handling apparatus is handling ore at the same instant.

Brown Hoist Unloader, Unloading Cargo of Ore; Grab Bucket Lowered into Boat.

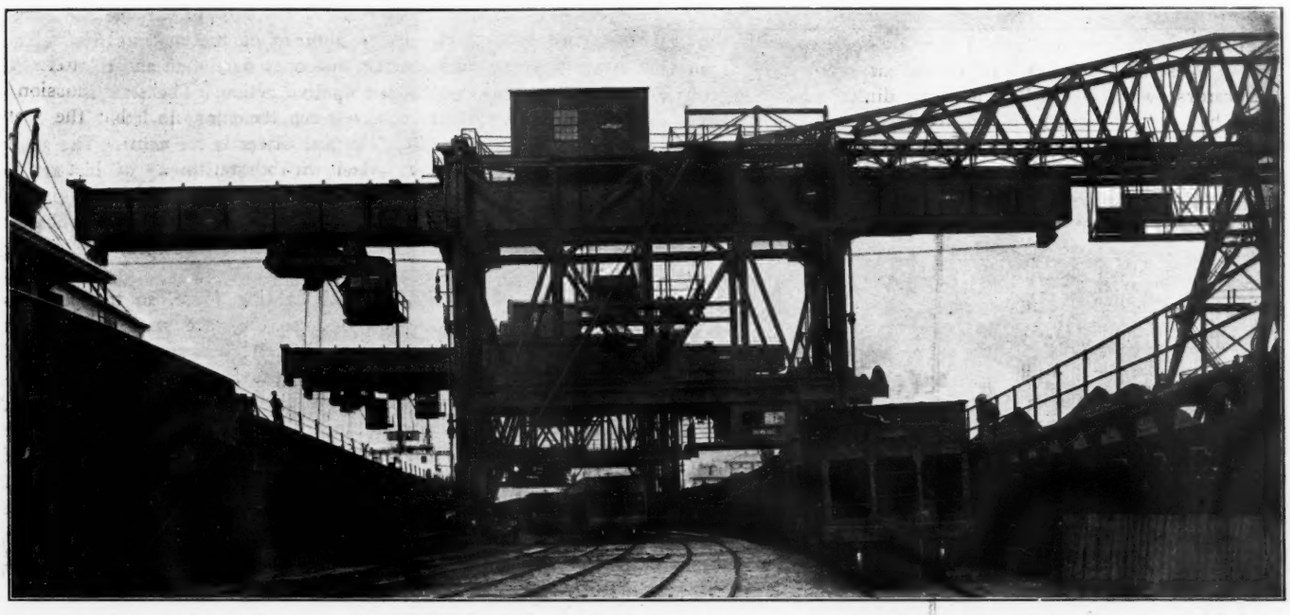
In addition to the two engine driven generators above mentioned, there is to be installed a 300-k. w. turbo generator. This turbine is now located at the car repair shop power plant. The voltage of the turbo generator will be stepped up to 2,300 volts and transmitted two or three miles, supplying power to the various shops of the railway company in Lorain. The turbine, when installed in the new plant, will be operated at 150 lbs. steam initial pressure, and will operate condensing, providing a very economical source of alternating current power for the shops, roundhouse, arc lighting, etc.

It is proposed to operate a 300-k. w. synchronous motor, d. c. generator set, from this turbine when the need for power at 250 volts direct current is small, also to operate the set, driving same as alternating motor and direct current generator, in parallel with one or both of the 500-k. w. Westinghouse generators previously mentioned, thereby providing 300-k. w. additional power for ore handling apparatus. Switching arrangements have been made to enable this motor generator set to be operated from either end as a motor, and in the event of repairs to the turbine, this set will be operated as a direct current and alternating current generator furnishing 440-volt, 60-cycle, 3-phase alternating current, which is stepped up to 2,300 volts for transmission to the shops. It will be seen from the foregoing that the motor generator set is a flexible tie between the alternating current and the direct current system in the station.

This motor generator set is made up of one alternating current unit and one direct current unit, the rotating elements being on one shaft and the whole machine on a common bed plate. The alternating current unit consists of one 3-phase, 300-k. w., 60-cycle, 440 volt separately excited alternating current machine. The direct current unit consists of one 250-volt, 300-k. w. compound, interpole machine operating at 600 r. p. m. normal rated speed. An Alberger surface condenser of sufficient capacity was provided together with a complete equipment of pumps, for handling the exhaust steam from the 300-k. w. turbine previously mentioned.

A complete feed water system was installed, consisting of one Cockran feed water heater and two Epping-Carpenter feed water pumps, 10 in. x 6 in. x 102 in. duplex, outside end packed, pot type, operated against a head of approximately 60 to 80 lbs. city water supply, the water supply to the heater being con-

trolled by an automatic float valve. In the exhaust line a 24-in. preference or back pressure valve was installed directly under the head, this valve being designed to automatically control the amount of steam to the feed water heater. An outside control lever is provided in order that the valve may be controlled from the engine room floor. A Patterson damper regulator was installed to control the main damper in the flue.

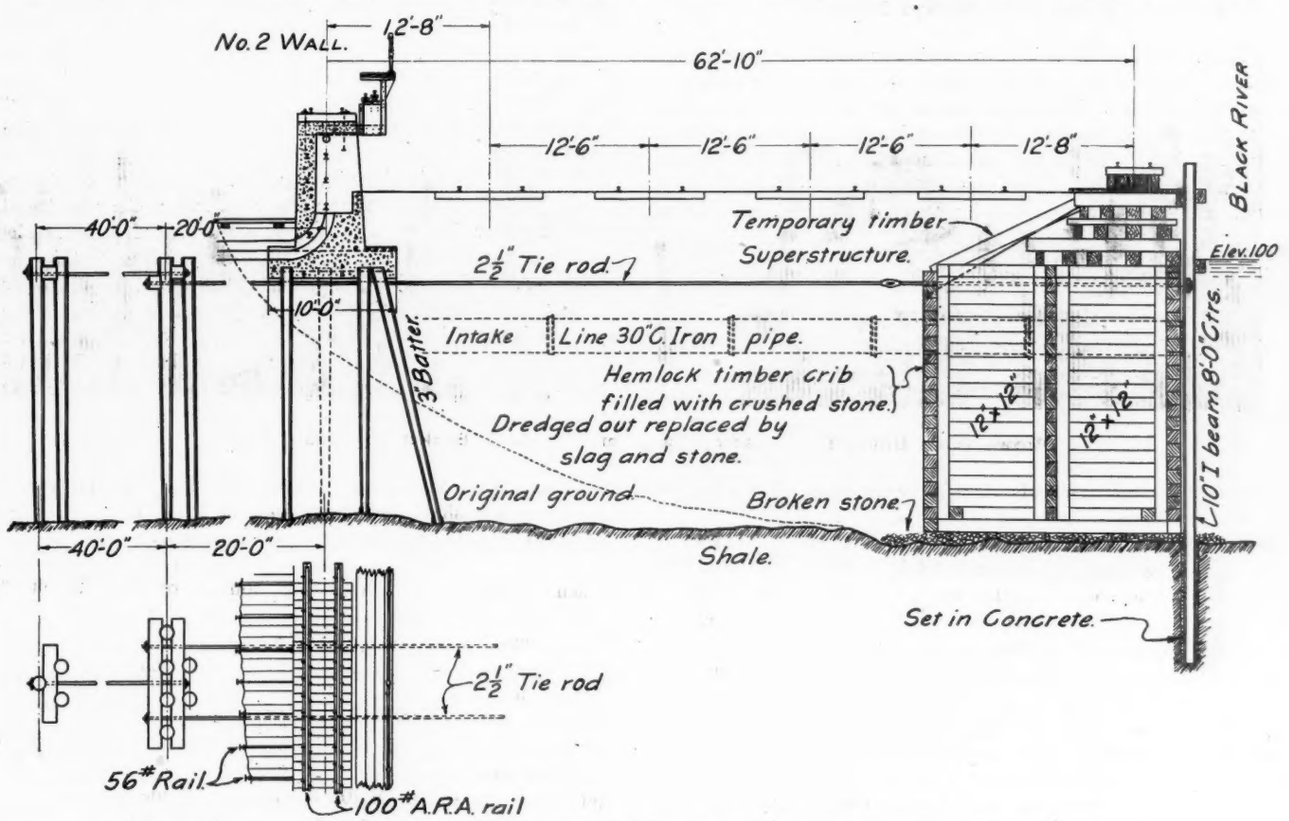


Unloading Machine and Arrangement for Loading Cars.

Two 250-volt direct current feeder circuits were provided, one for the supply of power to the three Brown hoist ore unloaders, and one for the power supply for the ore bridge.

The feeder for the unloader supply consists of one 2,000,000 and one 1,500,000 c. m. cable per side, a total of 3,500,000 c. m. for a distance of approximately 800 ft. from the switchboard to the center of distribution. The bridge feeder consists of one 1,500,000 c. m. cable per side for practically the same distance as for the unloader feeder. These feeders are paper insulated, lead covered, and were drawn into a conduit system feeding the various manholes in the ore handling apparatus piers.

Power is transmitted to the ore handling apparatus through conductor rails located on the piers which support the unloaders and bridge. On the unloader pier there are two 90-lb. A. S. C. E. rails used as conductor rails. These rails are reinforced with



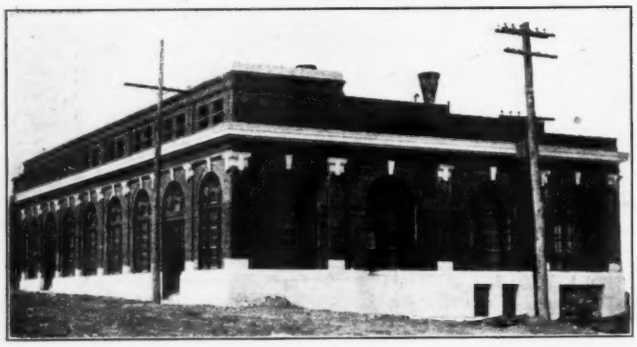
Cross Section, Showing Cribs on Dock.

two 700,000 c. m. bare copper cables the full length; each rail is also double bonded with an approved expanded bond. These rails are reinforced with two 1,250,000 c. m. w. p. cables, one positive and the other negative, with taps to the rail, also to the 700,000 c. m. cable along web of rail.

There are two piers for the bridge circuit. Each pair carries

Bridge Over Storage Piles.

one 90-lb. A. S. C. E. rail as a conductor, reinforced with one 700,000 c. m. bare cable on the web of the rail. These rails are also double bonded. These rails and feeders are so arranged that by means of suitable switches the entire output of the station may be concentrated on the unloader rails. The bridge feeders are then used as auxiliary unloader feeders. However, the bridge and unloader circuits may be separated and each oper-



Power House.

ated as a separate feeder having its own panel and switching gear.

The entire power station, including feeder and third rail systems for the unloaders and bridge were designed and installed under the supervision of the electrical department of the Baltimore & Ohio.

We are indebted to W. M. Ray, assistant engineer in charge of this work, for information concerning the engineering features.

LETTERS FROM AN OLD RAILWAY OFFICIAL TO HIS SON, A GENERAL MANAGER.*

X.

Chicago, June 10, 1911.

My Dear Boy: You have asked me to tell you something about line and staff. The term line is used to indicate the direct sequence toward the active purpose of the organization. The line officer exercises a direct authority over men and things. He is the incarnation of administrative action. The staff is supplementary to the line as equity is supplementary to law. The staff officer is the playwright. The line officer is the actor. The actor is usually too much absorbed with th technique of his art to write new plays. The line officer, as such, seldom originates new methods, because he is too close to his everyday problems of administration to cultivate perspective. The ideal staff officer has had experience in the line.

The line with a railway—its fighting force, so to speak—is the operating department. Because they are staff departments the offices of the other three, namely, accounting, traffic, and executive, legal and financial, can close from Saturday noon until Monday morning. The operating department, being the line, keeps the road open and the trains moving. Because of the poverty of our language, we now encounter some difficulties of expression in explaining all the various ramifications of line and staff. A staff department, because of its size, may exercise line functions within its own interior administration. Thus, the auditor organizes his office forces under appropriate chief and subordinate officers who, within the accounting department itself, exercise the authority of line officers. When such accounting officers get outside their legitimate sphere and endeavor to act as line officers in the operating department, expensive friction begins. This feature I shall discuss with you later. Suffice it to say that at present the hardest of all problems is to keep line and staff in economical balance. Staff departments then may within themselves exercise line functions. This grows rather from necessities imposed by size than from inherent nature of function. The first staff officer was an adviser and exercised no authority, except that of polite inquiry, because there was no one whom he could properly command. So the line, the operating department, soon grows so big as to require staff officers within itself, people who have time to think out improvements because they are not burdened with administrative responsibilities.

Hold tightly to this thought, my boy. The plane of differentiation betwen line and staff usually follows a cleavage based upon size rather than upon relative importance of function. The first line officer needed no staff, because he had time to think as well as act for himself. The first superintendent looked after the repairmen himself. The first master mechanic came into being not because he was so different from everybody else, but because the superintendent had become too busy to do it all himself. By and by the master mechanic forgot this basic fact and unconsciously exaggerating his own specialty began to feel that the railway is incident to shops and equipment rather than shops and equipment being incident to the railway. The last five years have witnessed a decided improvement in this undesirable condition. Just at present the store department Indians are the tribe most in need of being rounded up on the operating department reservation for eye wash and vaccination against distorted perspective.

The operating department of a railway is or should be a real department, complete and self-contained. It consists of such important component elements or branches as maintenance of way and structures, maintenance of equipment, transportation, telegraph, signals, stores, purchases, dining cars, etc. Let us not waste any time discussing the relative importance of these components. Æsop centuries ago did that better than we can. His fable of the quarrel among the organs of the human body teaches

us that while all are important each is useless without the others.

Individually the general superintendent, the chief engineers, the superintendent of motive power, the superintendent of transportation the superintendent of telegraph, the general storekeeper, and the superintendent of dining cars are line officers exercising direct authority in a defined sequence. Collectively they constitute, for consultation, the general manager's staff. When all have the rank and title of assistant general manager, this duality of function is the more pronounced and valuable. For the feudal notion of unbalanced components is substituted the cabinet idea of comprehensive deliberation, unified administration and devotion to a common purpose. (Anvil chorus: "It's that way on our road now.") Perhaps so, but if so, what assurance have your stockholders and the public that the same happy condition will obtain ten years hence? Each head of the nine executive departments in Washington is a line officer running his own department. At the President's cabinet table he becomes a staff officer deliberating upon the problems of all. The attorney-general should be called secretary of law, and the postmaster general secretary of posts. Then all nine would have the uniform title of secretary. The position of secretary to the president, an assistant *to* proposition, should be abolished—usually I prefer the gentler expression, "title discontinued." His duties should be performed by the secretary of state, who is always the ranking member of the cabinet. In the first cabinet, that of George Washington, the secretary of state, Thomas Jefferson, was in effect, though not in name, prime minister and chief of staff. Foreign affairs, then an incidental feature, are now so extensive for a world power that we should have another department under a secretary of foreign affairs, leaving the secretary of state as senior to be the able righthand man of the president. Here again the size of the proposition, the volume of business, is the proper determining factor.

On a small railway the chief engineer as a line officer may be able to do all the engineering himself. As the business grows he requires such special staff advisers as an office engineer, a locating engineer, a bridge engineer, a tunnel engineer, a signal engineer, etc. Some roads make such engineers line officers by giving them extensive authority over working forces. Usually I believe this is a mistake. It seems better for these engineers to be real staff officers, thinking, inspecting, warning, instructing (in the sense of lecturing), improving, designing and perhaps sometimes installing, but never directly operating or maintaining. The same general reasoning applies to the mechanical bureau when the business of the chief mechanical officer attains a volume necessitating the help of such valuable staff officers as a mechanical engineer, an electrical engineer, a testing engineer, etc.

When the telegraph came to supplement the railway, men stood in awe of its invisible effcts. Soon the telegraph man said in effect, "this is a wonderful and mysterious specialty which you fellows cannot understand. Let me, the expert, handle it for you." So he segregated unto himself a so-called department on the plea that it is so different. By and by the division superintendents woke up to find their telegraph hands tied. Appeals to the general superintendent or general manager proved fruitless. So the division linemen usually report directly to the superintendent of telegraph. They often stay around division headquarters until the chief despatcher is able to jar them loose and get them out on the road. Then they go to the scene of trouble, look wise and get the section foreman to dig the hole and do most of the work. Why not, therefore, hold the section foreman responsible for ordinary wire repairs in the first place? Let every section house have a pair of climbers, a wire cutter and pliers with whatever simple outfit may be necessary. If unusual troubles develop or a line is to be rebuilt send the most expert help available, but while on the division let such help be under the authority of the superintendent. We need an expert at the top as chief telegraph and telephone officer to tell us all how to do it. The volume of business will usually warrant making him a line officer with the rank and title of assistant general manager. He should not deal directly with operators and linemen any more than a general superintendent under normal conditions should instruct an individual conductor or a chief engineer communicate direct with a section foreman. The integrity of the division as an operating unit should be respected.

By and by the signals followed the telegraph. Once more the management allowed the specialist to put it over at the expense of the good old wheel horses in the regular line organization. The embryo signal engineer said, "This wonderful and mysterious development is really something different this time. It is absurd to suppose these stupid old section foremen can learn anything about electricity." So the signal engineer was allowed to build up a new department. He went out on the ranches or in the barber shops and hired signal maintainers. A new department is liberally treated because its activities are a fad for the time being. These signal maintainers in a few months absorb so much magnetism from the field of the signal engineer that they are qualified experts to whom the rest of us must not say anything. They have easier work, if not better pay, than the faithful section foremen of perhaps twenty years' service. The old section foreman has a "savey" of the railway business, an intuitive knowledge of the requirements of train movement that it will take the fresh young maintainer years to acquire. Then we wonder why it is so difficult to secure loyal section foremen. Sometimes a belated effort has been made to let in the section foremen on the signal game. It is difficult, however, to get the signal people to take an appreciative and sympathetic inerest in men who are not in "my department." Therefore, to prevent your track forces being thrown out of balance it will be better for a few years to keep the signal engineer on most railways as a staff officer without permitting him a line organization for operation and maintenance. Say to your roadmasters and section foremen that they will, at the company's expense, be given instruction in signals. When the signal engineer, the expert, pronounces them qualified by examination or otherwise, let them understand that there is a small automatic increase in pay. Transfer to branch lines the few who prove hopelessly deficient. The track laborer who can qualify to look after a particular signal is worth a few cents more a day to the company and should be so advised. If you start with the presumption that the man below is too dumb to learn you handicap him and probably doom him to failure. If you make him believe that he can learn what men of the same class around him are learning, that you, his elder brother, are in duty bound to help him, you will be astonished at the response of his latent intelligence. The great managers of the feudal period were forceful drivers. The great managers of today and tomorrow are great teachers, the greatest of all experts, because they show the man below how to do it. Lots of men know how. A good many know why. Comparatively few have that rare and valuable combination of knowing both how and why. It is not a happen so, but a response to the law of supply and demand that men of the Woodrow Wilson type are coming to the front in our political life.

Getting back to signals. On a road of more than one or two tracks, it may be advisable to segregate your signals from your track. Here again, the dividing line is volume of business rather than fancied importance of function. Signals are important, but so is the track. Each is an incidental component of railway operation, not the whole operation itself. On most railways the section foreman should be the responsible head of a complete sub-unit for everyday maintenance and inspection, including track, bridges, fences, poles, wires and signals. This may involve giving him more help or a shorter section.

One of the problems of line and staff is to determine what is intelligent rotation between the two. The line officer, dealing with men rather than ideas, may get into a rut of practice which prevents his seeing the beauty of the rainbow which the untrammeled staff officer may be tempted to chase too far. Some officers succeed brilliantly at originating or developing ideas in the staff and fail miserably at handling men in the line.

True individuality about which men prate the most is that which is understood the least. Our army and navy are insisting that before being staff officers, all officers, except surgeons and chaplains, must first learn to handle men by serving in the line; that crystallization in the staff must be prevented by periodic rotation to definite tours of duty in the line. The railway of the future will probably carry extra numbers of line officials in the various grades that some may be available for detail to the staff, that we may better co-ordinate our studying and our working activities.

People say that our good friend, Harrington Emerson, able and sincere, will unconsciously give the staff the best of it; while your old dad, on an even break, will be found on the side of the line. If they are correct, it leaves plenty of room for the other fellows in between. One of the delightful foibles that make human nature so interesting and so lovable is the inborn conviction of the average man that, "though H be a conservative and F. a radical, I am always the happy medium."

Affectionately, your own,

D. A. D.

HANDLING EXPRESS AND FAST MERCHANDISE FREIGHT.

BY A TRAINMASTER.

With the guarantee of safe transit of bullion across the continent by Adams & Co., and Wells, Fargo & Co., San Francisco bankers, the continental express companies were inaugurated. The great railway construction period following closely upon this, it was only natural that traffic arrangements should be made between the two. Transportation of other valuables and merchandise followed. The reason for handling merchandise by express companies was not the guarantee of safe transit, but the better service offered. The express companies transporting their merchandise by passenger trains and making door to door delivery, while the railways transported their merchandise by freight service and did not make door to door delivery.

With neither terminals nor rolling stock, with none of the operating, construction or equipment difficulties experienced by railways, the express companies are given passenger train service and the use of the most centrally located terminals for handling the same class of freight as the railways handle in freight service at less centrally located terminals. The result of this is that with practically no money invested, and therefore with comparatively little financial risk, the cream of the merchandise freight goes to the express companies, resulting in their paying enormous dividends. These dividends properly belong to the shippers, the railway stockholders and railway employees. Another ill is that passenger traffic is often demoralized by handling express (freight) at passenger terminals.

The railways should inaugurate a fast package freight service and make door-to-door delivery, making proper charge for the improved service. The present method of handling both express and high class freight is cumbersome and crude. All freight should be handled at freight stations, thereby removing this burden from the passenger terminals. The perishable merchandise freight trains should be light and run on a schedule of thirty to fifty miles an hour. The increase in less than carload freight will necessitate some readjustment in handling, but since live stock, dressed beef, dairy products, fruit and produce are handled principally by freight service at the present time, there should be no delay or confusion at junction points or terminals.

Currency and other valuable registered matter could be handled in baggage cars, as it is now handled in express cars.

The local or divisional merchandise locals should be made traveling transfers, and also be run on schedule, making divisional runs in six to ten hours. The present method of using freight equipment, the train crew handling freight across tracks between cars and freight station platforms, is slow and a great factor in causing the low minimum carload. On railways of two or more tracks an overhead carrier should be used. All cars in this service should be equipped with large end doors and overhead carriers running the length of the train. The freight trucks used on these carriers should be loaded at freight stations and on the train on arrival of the trains at stations, so that the only labor involved at freight stations would be that of running the freight trucks in and out of the train. Loading trucks at freight stations should be loaded by classification so that trucks could be run direct to the proper car. There should be a receiving car and a distributing car located near the center of the train. There would be a small percentage of bulky and unwieldy freight that would have to be handled by hand, as at present, but there would be only one car from which to load and unload, and more men to assist. With the overhead carriers and end doors, classification could be made en route.

The only shifting these trains should do should be to set off such cars as those containing freight from originating freight stations, and stations en route which make minimum loads. They should also pick up containing freight from the originating divisional station, and other stations en route to the terminal which would make minimum loads. This would amount to two or three pick ups and set-offs on a division. Several of these trains should be run daily and should make connections at terminals with through scheduled freights. The freight department should furnish the freight handlers and the operating department should furnish the train crews.

The benefits derived from this plan would be better service to the public, consisting in giving faster transportation, and door-to-door delivery freight, and in reducing interference with passenger traffic. It would be advantageous to the railways, because it would increase their revenue, increase the minimum carload, reduce labor at junction points, and make necessary fewer box cars, fewer movements and cars to and from junction transfers and fewer cars on the road.

TRANSPOSITIONS OF TELEPHONE WIRES.

The first telephone despatching circuit we installed was transposed every half mile. The selectors were in series, alternating on each wire. The circuit was found to be slightly noisy, and we then transposed it every quarter mile, which cut down the noise for a time, but we found it almost impossible to keep the circuit free from noise while working the selectors in series; and, as we found that most of the failures were due to the contact points of the relay, we changed from series to main line bridging selector without relay. Since then the circuit has been practically free from noise, and on all subsequent circuits installed the same method has been followed. We now transpose all our despatching circuits every quarter mile, except where two circuits parallel each for a portion of the way. Over this section one circuit is transposed every quarter mile, and the other every half mile. Looking forward to the time when the telephone will be used for other work, we arrange transpositions on our copper telegraph wires (and sometimes on the iron), every half mile for the first pair, and for the second pair, every mile, or transposed at the quarter, three-quarter, and mile, skipping the half mile. Our method of transposing when the two wires are on the same arm, is by the use of a curved iron bracket under the arm, and so placed that the wire it carries comes directly under the wooden pin carrying the other wire over the top of the arm.—*W. J. Camp* (C. P. R.) before Railway Telegraph Superintendents.

It is expected that the section of the railway between Kao Plyng, Siam, and Utaradit will take the place of the caravans which now bring down approximately 800 tons of goods yearly, consisting of hides, wax, horns, lacquer, betel nut, and medicinal plants to the value of about $111,000, taking back in return kerosene, dry goods and dried fish valued at about $259,000.

General News Section.

Firemen on the Southern Pacific have asked an increase of 20 per cent. in pay. The company offers 15 per cent.

A press despatch of July 18 reported a collision of work trains near Morelia, Mexico, in which more than 40 persons were killed. No later details are available.

The New York Central has followed the example of other roads in organizing a special bureau for the reduction of accidents through the education of employees and the public.

The Pennsylvania Railroad has been awarded a certificate of honorable mention for the exhibit made at the recent convention of the American Humane Association. The exhibit consisted of an actual size cross section, models and photographs of the Pennsylvania's steel underframe livestock car.

Lieutenant Conneau, who races under the name Beaumont, won the aeroplane race around England for the $50,000 prize offered by the London *Daily Mail*. The race began July 22, and Beaumont finished July 26, covering the 1,010 miles in 22 hours 28 minutes actual flying time. Vedrines was second.

The government has entered suit at Indianapolis, Ind., for violation of the hours-of-service law, against the Pittsburgh, Cincinnati, Chicago & St. Louis on 41 charges, penalties aggregating $25,000 being asked; and against the Cleveland, Cincinnati, Chicago & St. Louis, $5,000 in penalties being asked.

Suit has been brought against the Union Pacific by F. C. Boettger, of Kansas City, and his father for $10,000 each, as damages for wounds received by the son in the Laramie, Wyo., yards in August, 1909. Boettger was trespassing and was shot while running away from a railway policeman who was trying to arrest him.

Two attempts were made last week to wreck a train on the Long Island Railroad near Valley Stream. On Friday evening ties were laid across the track but were thrown aside without derailing the train. On Sunday night a cross tie was imbedded upright between the tracks. The engineman of a heavily loaded excursion train saw the obstruction in time to stop.

The Philadelphia & Reading is preparing to file suits contesting the Pennsylvania full-crew law. The Pennsylvania Railroad, as noted last week, has already begun suits. The latter company, while complying with the law, is trying to offset some of the additional expense by making up more heavy trains, double-heading where necessary, and thereby saving expenses of conductors and enginemen.

Operators on the Cincinnati, New Orleans & Texas Pacific have demanded more pay, shorter hours and improved working conditions. The increases in pay asked for are reported as being 30 per cent. A representative of the Order of Railway Telegraphers is quoted as saying that similar action would be taken on the Cincinnati, Hamilton & Dayton. Demands have already been made on the Cleveland, Cincinnati, Chicago & St. Louis.

The North Coast Limited on the Northern Pacific was held up by three train robbers near Buffalo, N. Dak., on the night of July 19. They boarded the train at a flag stop and went through the observation car and the sleeper next to it, taking about $500 from the passengers. After they had gone into the second sleeper the sleeping car conductor fired from the first sleeper and the robbers made for the head of the train. They shot the engineman twice, though without seriously injuring him, before he would stop the train, and then escaped.

The Lehigh Valley has ordered Western Electric selectors and telephones to equip the west end of its Buffalo division. When this new circuit, 135 miles long, and other sections for which material had previously been ordered, are equipped, traffic on the whole line from Jersey City to Buffalo will be handled by telephone. The Pennsylvania Railroad is about to install telephones on 129 miles of its Western Pennsylvania division. Only a few miles of road on this division are now equipped. The Grand Trunk is reported as having decided to adopt telephone train despatching over the whole system.

Columbia University has announced two evening courses in surveying for the coming year. A course in plane surveying, from September to June, will cover the use of surveying instruments, the principles of surveys and the office work connected therewith. The other course is in railway surveying, including the theory of curves, turnouts, etc., and the solution of many practical problems in connection with the theoretical work. A knowledge of plane trigonometry will be required for admission to the first course, and a knowledge of practical surveying as well will be essential for admission to the course in railway surveying.

Coroner Wilson at Bridgeport, Conn., who has been conducting a secret inquiry into the wreck of the Federal Express on the New York, New Haven & Hartford on July 11, has made a report finding that both the railway company and the engineman were criminally negligent. He charges the railway company with maintaining dangerously sharp crossovers on fast express tracks and with relying on a rule governing their use. So far as his report is made public, he does not take into consideration the fact that the railway company relied on signals and not a rule alone for restricting speed at the crossover.

The coroner's jury investigating the derailment on the Oregon Trunk Railroad July 10, in which seven lives were lost, finds the engineman, the conductor and the assistant roadmaster, who was on the train, responsible. The engineman was exceeding the speed limit over track which should have been protected by a slow board. The conductor and the assistant roadmaster are held negligent in not signaling the engineman to reduce speed. Two representatives of the Interstate Commerce Commission are making investigations, this being the second accident to be officially investigated by the commission since the new law went into effect, the first being the New Haven wreck two weeks ago.

The Steel Corporation's Second Quarter.

The financial statement of the United States Steel Corporation and subsidiary companies for the quarter ended June 30 shows that the total net earnings were $28,108,520, after deducting all expenses incident to operations, including those for ordinary repairs and maintenance of plants and interest on bonds and fixed charges of the subsidiary companies. This compares with $40,170,960 for the same period in 1910 and with $23,519,203 for the quarter ended March 31, 1911. The unfilled orders on hand June 30 were 3,361,058 tons, a decrease of 86,243 tons, compared with March 31, 1911, and a decrease of 896,736 tons, compared with June 30, 1910. The surplus for the quarter after the payment of regular dividends was $1,869,177, as compared with a surplus of only $31,155,000 in the preceding quarter.

Government Accident Bulletin.

Accident Bulletin No. 39, just issued by the Interstate Commerce Commission for January, February and March, 1911, shows that there were 146 persons killed and 3,228 injured in train accidents. Accidents of other kinds bring the total number of casualties, not including Industrial Accidents, up to 18,554 (2,124 killed and 16,430 injured). Of this number there was a total of 706 employees killed and 10,974 injured, being a decrease of 229 in the number killed and, also, a decrease of 2,908 in the number injured. Accidents resulting in slight injuries are not included in the figures given.

Comparing the figures with those in the bulletin of a year ago, there is a great falling off in the number of passengers killed in train accidents, being from 110 to 28; the explanation is that in 1910 there were 51 passengers killed by an avalanche and 45 killed as a result of a derailment.

There were 55 employees killed and 738 injured in coupling and uncoupling cars and engines, being a decrease of 5 in the number killed and 139 in the number injured, as compared with the figures in the preceding bulletin.

Accidents reported by electric lines, on which interstate traffic is carried, show that there were 61 persons killed and 696 injured on electric roads during January, February and March, 1911, being a decrease of 53 in the number killed and 335 in the number injured.

The total number of Industrial Accidents, those sustained by employees where no moving engine or car is involved, was 113 killed and 18,658 injured, being an increase of 6 in the number killed and a decrease of 1,736 in the number injured.

New York Subways.

Contracts were signed on July 21 for building the greater part of the Lexington avenue subway. This is to be built by the city, and actual work on the first section is to begin on July 31. Four years are allowed for the construction, but it is expected that it will be finished sooner. The Public Service Commission is working on forms of contracts for connecting subways, the general plans for which have been approved. The Board of Estimate has approved the terms offered by the Brooklyn Rapid Transit for the operation of the Lexington avenue subway and other lines, but this approval is not binding. The Interborough Rapid Transit or any one else may still negotiate for the operation of any subways the city may build. It is generally understood, however, that the Interborough Rapid Transit will have to make at least as favorable terms as those offered by the Brooklyn company in order to get the contract for operating the Lexington avenue subway and other lines which should logically be operated in harmony with it.

Annual Report of the Interstate Commerce Commission.*

The statements in this abstract are from the twenty-third annual statistical report of the Interstate Commerce Commission, covering the fiscal year ended June 30, 1910.

On June 30, 1910, there was a total single-track mileage of 240,439 miles in the United States, indicating an increase of 3,605 miles over the corresponding mileage at the close of the previous year. An increase in mileage exceeding 100 miles appears for the States of California, Florida, Georgia, Minnesota, Mississippi, Nevada, Oklahoma, Oregon, Texas, Washington, and West Virginia, and the Territory of Arizona.

During the year railway companies owning 8,614 miles of line were reorganized, merged, or consolidated.

There were 58,947 locomotives in the service of the carriers on June 30, 1910, indicating an increase of 1,735 over corresponding returns for the previous year. Of the total number of locomotives, 13,660 were classified as passenger, 34,992 as freight, and 9,115 as switching, and 1,180 were unclassified.

The total number of cars of all classes was 2,290,331, or 72,051 more than on June 30, 1909. This equipment was thus: assigned: Passenger service, 47,095 cars; freight service, 2,135,-121; and company's service, 108,115. The figures given do not include so-called private cars of commercial firms or corporations.

The average number of locomotives per 1,000 miles of line was 245, and the average number of cars per 1,000 miles of line was 9,510. The number of passenger-miles per passenger locomotive was 2,367,386, and the number of ton-miles per freight locomotive was 7,287,863. The returns indicate that the number of locomotives and cars in the service of the carriers aggregated 2,349,278, of which 2,301,260 were fitted with train brakes, an increase of 86,353 over the previous year, and 2,332, 837 were fitted with automatic couplers, an increase of 72,060. Nearly all of the locomotives and cars in passenger service were equipped with both train brakes and automatic couplers. Substantially all the freight locomotives had train brakes and automatic couplers. Of the 2,135,121 cars in freight service on June 30, 1910, the number fitted with train brakes was 2,107,312, and the number fitted with automatic couplers was 2,120,750.

The total number of persons reported as on the pay rolls of the steam roads of the United States on June 30, 1910, was 1,699,420, or an average of 706 per 100 miles of line. As compared with returns for June 30, 1909, there was an increase of 196,597 in the total number of railway employees. There were 64,691 enginemen, 68,321 firemen, 48,682 conductors, 136,938 other trainmen, and 44,682 switch tenders crossing tenders and watchmen.

The total number of railway employees (omitting 95,328 not distributed) was apportioned among the six general divisions of employment as follows: To maintenance of way and structures, 504,979; to maintenance of equipment, 329,373; to traffic expenses, 21,652; to transportation expenses, 661,355; to general expenses, 53,385; and to outside operations, 33,348.

The total amount of wages and salaries reported as paid to railways employees during the year ending June 30, 1910, was $1,143,725,306.

The total number of persons reported by switching and terminal companies as on their pay rolls on June 30, 1910, was 33,015. The total amount of wages and salaries reported by this class of companies for 1910 was $21,719,549.

The number of passengers carried during the year ending June 30, 1910, was 971,683,199. The corresponding number for the year ending June 30, 1909, was 891,472,425. The increase in the number of passengers carried during the year over 1909 was 80,210,774.

The number of passengers carried 1 mile, or the passenger mileage, as compiled for 1910, was 32,338,496,329. The corresponding return for 1909 was 3,229,173,740 less. The number of passengers carried 1 mile per mile of road was 138,250.

The number of tons of freight shown as carried (including freight received from connections) for the year ending June 30, 1910, was 1,849,900,101, while the corresponding figure for the previous year was 1,556,559,741, the increase being 293,-340,360 tons.

The ton mileage, or the number of tons carried 1 mile, as shown for the year ending June 30, 1910, was 255,016,910,451. The total ton mileage as reported for the year ending June 30, 1909, was 218,802,986,929, from which it will be seen that the increase in the ton mileage for the year ending June 30, 1910, over the return for 1909 was 36,213,923,522. The increase in the number of tons carried 1 mile in 1909 over 1908 was 421,432,127. The number of tons carried 1 mile per mile of road for the year 1910 was 1,085,745.

The average receipts per passenger per mile, as computed for the year ending June 30, 1910, were 1.938 cents; the average receipts per ton per mile, 0.753 cent. The passenger service train revenue per train-mile was $1.30.396; the freight revenue per train-mile was $2.86.218. The average operating revenues per train-mile were $2.24.628. The average operating expenses per train-mile were $1.48.865 The ratio of operating expenses to operating revenues was 66.29 per cent.

International Railway General Foremen.

The International Railway General Foremen Convention opened Tuesday at the new Sherman Hotel, with C. H. Voges presiding. An address of welcome was made by E. F. Wade, assistant corporation counsel of Chicago. F. C. Pickard's report on "Hon Can Shop Foremen Best Promote Efficiency," was discussed during the greater part three days.

The shop kinks committee on Thursday morning presented the *Railway Age Gazette* shop kinks book as part of its report. This report was very favorably received. A paper was read Thursday afternoon by D. E. Barton on Methods of Shop Organization. There were addresses by J. F. Devoy Tuesday afternoon, by F. J. Bentley Wednesday afternoon and August Sinclair Thursday afternoon. The attendance was three times that of last year.

F. C. Pickard, master mechanic C. H. and D., at Indianapolis, was elected president; J. A. Boyden, of the Hornell shops of the Erie, was elected first vice-president; T. F. Griffin, of the C. C. C. & St. L. at Indianapolis, was elected second vice-president; W. Smith, of the Chicago & North Western at Fremont, Neb., was elected third vice-president; L. A. North, of the Illinois Central at Chicago, was elected fourth vice-president, and L. H. Bryan, Duluth & Iron Range at Two Harbors, Mich., was elected secretary and treasurer. The executive committee was as follows: W. W. Scott, C. H. and D., Indianapolis, and W. C. Reyer, N. Y. C. & St. L., at Nashville, Tenn.

The annual meeting of the Railway Supplymens' Association in connection with the convention of the International Railway General Foremen's Association, was held at the Hotel Sherman, Chicago, July 26. The following officers were elected: Chair-

* An abstract of the text of the report was published in these columns last December. The figures given here are taken from the bound volume containing statistics which has just been published.

man, J. C. Younglove, H. W. Johns-Manville Co., Chicago; secretary and treasurer, B. J. Nelley, Jenkins Bros., Chicago, and two directors to serve three years, George R. Carr, Dearborn Drug & Chemical Works, Chicago; and Henry S. Mann, Goldschmidt Thermit Company, New York.

Adreon Manufacturing Company, St. Louis, Mo.—Campbell graphite lubricating system, American graphite tank hose coupling, D. & L. throttle rod stuffing box, Security bell ringer, Security combination angle cock and pipe clamp, Security back up valves, Hanlon locomotive pneumatic sanders. Represented by Wm. Miller.

American Arch Company, New York.—Security sectional arch, showing its application to the Schmidt superheater. Represented by Le Grand Parrish, John P. Neff, Charles B. Moore.

American Steel Foundries, Chicago.—Illuminated photograph showing the pouring of the Davis steel wheels; models of Andrews side frames; Simplex bolsters, Simplex couplers; models of Vulcan, Hercules, Acme and Ajax brake beams. Represented by L. E. Jones, C. C. Hopkins, W. C. Walsh, W. G. Wallace.

Anchor Packing Company, Philadelphia, Pa.—Samples of air pump packing, and throttle sets and Taurail sheet packing. Represented by E. C. Adams and J. H. Robb.

Armstrong Bros. Tool Company, Chicago.—Full line of lathe and planer tool holders, ratchet drills, drop forged steel lathe dogs, clamps, etc. Represented by Paul Armstrong.

Ashcroft Manufacturing Company, The.—Prismatic water gages, water gage cocks, locomotive steam gages.

Ashton Valve Company, Boston, Mass.—Gages, pop valves, train whistles, wheel press, recording gage, gage testers, Ashton protected gages for rear end train brake service, Ashton sanitary drinking bubblers. Represented by J. W. Motherwell and C. A. Denniston.

Barrett Manufacturing Company, New York.—Samples of tar rock subfloors, Barrett specification roofs and literature describing same. Represented by E. J. Caldwell.

Bowser & Co., S. F., Fort Wayne, Ind.—Bowser oil storage and distributing system literature, blue prints, etc. Represented by J. E. Handy.

Carborundum Company, Niagara Falls, N. Y.—Grinding wheels, general railway shop grinding wheels, sharpening stones, polishing cloth, valve and steam pipe joint grinding grain. Represented by R. S. Marvin, C. C. Shoomaker, R. H. Hogg.

Carpenter Steel Company, Chicago.—Samples of tool steel and alloy steels. Represented by Russell Dale.

Celfor Tool Company, Chicago.—Celfor drills, taper shape drills, concave taper shank drills, taper shank reamers, three-lip taper shank drills, Celfor-Rich flat drills and chucks, flue sheet cutters, lathe tool holders, lathe tool bits, boring bars, counter sinks. Represented by J. J. Dale, F. G. Hoffman.

Chicago Pneumatic Tool Company, Chicago.—Line of pneumatic tools, drills, hammers, jam riveters, rivet busters, air tool supplies. Represented by C. E. Walker, Thos. Aldcorn, J. C. Campbell, T. G. Smallwood, J. W. McCabe, J. O'Connor and F. Walsh

Chicago Railway Equipment Company, Chicago.—P. C. Creco high speed passenger bearings, Creco roller freight and passenger side bearings, Creco street car bearings. Represented by C. H. Williams, Jr., Edwin F. Leigh, R. S. Deacon.

Consolidated Safety Valve Company, The.—Locomotive pop safety valves with and without mufflers.

Crane Company, Chicago.—Full line of valves. Represented by G. S. Turner.

Crucible Steel Company of America, Pittsburg, Pa.—Catalogues descriptive of Rex AA high-speed steel and other well-known brands, such as Parks' Crescent and Sanderson steels. Represented by F. Baskerfield, William Stevenson and F. A. Lawler.

Dearborn Drug and Chemical Works, Chicago.—Catalogues, etc. Represented by Robert F. Carr, George A. Carr, Paul T. Payne, J. D. Purcell, J. F. Roddy, I. H. Bowen, C. Murray.

Detroit Lubricator Company, Detroit, Mich.—Full line of one- to seven-feed lubricators with the oil control valve; also a five-feed No. 42 under working condition of feeding the oil; also the four sizes of the air pump and air cylinder lubricators, one to four feeds. Represented by A. D. Homard.

Dixon Crucible Company, Joseph, Jersey City, N. J., and Chicago, Ill.—Samples of graphite productions. Represented by F. R. Brandon.

Emery Pneumatic Lubricator Company, St. Louis, Mo.—Automatic lubricator for brake equipment and brake cylinder lubricant. Represented by N. J. McAloney.

Fairbanks, Morse & Company, Chicago.—Hydraulic roller bearing and extra heavy ratchet jacks, new ratchet car brassing jack with wheel-holding devices; also sectional model of the new Duff Bethlehem jack, showing construction made from solid forging. This type of construction making it absolutely leak-proof. Represented by A. A. Taylor, C. W. Kelly and E. M. Fisher.

Firth Stirling Steel Company, Pittsburgh; E. S. Jackman & Co., agents.—Finished blue chip tools consisting of end mills, lathe tools, milling cutters; also showing the barium-chloride process of tempering steel. Represented by Wm. Nelson, Jr.

Garlock Packing Co., The, Palmyra, N. Y.—Complete line of samples of piston packing and sheet packing for shop use, throttle and air pump packing for locomotives, special "950" gaskets for air pumps and triple valves. Represented by J. P. Landreth and Phil Arnold.

Geometric Tool Company, The, New Haven, Conn.—Self-opening die heads, also taper threading heads and collapsing taps; special machine for grinding chasers and dies. Represented by George T. Case.

Goldschmidt Thermit Company, New York.—Welded samples, complete thermite equipment for welding locomotive frames, pipe welding samples, metal alloys and different thermits from which pure alloys are produced, thermit for foundry practice, electric sign in colors showing thermit welding process in operation, moving pictures showing views in various foundries and shops illustrating thermit welding of locomotive parts. Represented by H. S. Mann, H. D. Kelly and Dr. E. A. Beck.

Greene, Tweed & Co., New York.—Air pump and throttle valve packing, twist packing for small valves, and braided packing for piston rods; also packing for hydraulic work. Represented by F. E. Ransley and George A. Hawkins.

Hancock Inspirator Company, The.—One Type E. inspirator, one Type A inspirator, one Type H inspirator non-lifter and operating valve; hose valves, main steam valves, vertical check valves, binary blow-off valves, cylinder cocks, malleable iron oil cups, combined stop and check valves, Globe and angle valves, one pair swing check valve castings as taken from sand.

Hoskins Manufacturing Company, Chicago.—Electric furnaces, pyrometers for steel treating. Represented by W. V. Young and C. F. Busse.

Hunt-Spiller Manufacturing Corporation, Boston, Mass.—Cylinder packing bushing, valves packing, valve cages, cross-head shoes, air-pump bushing, side-rod backs, knuckle joint bushing shoes and wedges and driving boxes. Represented by J. G. Platt and V. W. Ellet.

Independent Pneumatic Tool Company, Chicago.—Thor corner drill, four-cylinder reciprocating type Corliss valve drill, one-piece riveting hammer, duplex valve chipping hammer. Represented by John D. Hurley, R. T. Scott, J. J. Keefe, H. Finney, V. W. Robinson.

Jenkins Bros., New York.—Samples of globe angle and Y-valves and 96 packing. Represented by B. J. Neely.

Johns-Manville Company, New York.—Asbestos and magnesia supplies, high and low-pressure packings, expander rings. Represented by James Younglove.

Leslie Company, Lyndhurst, N. J.—Leslie pressure regulator for steam or air, full line of valves. Represented by J. J. Cizek.

Locomotive Improvement Company, Clinton, Iowa.—Model of Merkel's removable driving box brass, lateral motion plates, flangeless shoes and wedges, solid back end of main rod. Represented by L. W. Barker.

Locomotive Superheater Company, New York.—Model type A superheater for locomotives, adaptable for all modern locomotives, showing entire superheater in boiler, cut in sections showing detail construction of the parts and illustrating the path of the steam from the boiler through the superheater and steam pipes to the steam chest and cylinders. Represented by George L. Bourne, H. B. Oatley.

Lodge & Shipley Machine Tool Company, Cincinnati, Ohio.—Catalogue descriptive of engine lathes. Represented by H. M. Wood.

Manning, Maxwell & Moore, Inc., New York.—Representing The Ashcroft Manufacturing Company, The Consolidated Safety Valve Company, The Hayden & Derby Manufacturing Company, The Hancock Inspirator Company, Hancock Type E Inspirator. Represented by L. Brown, L. R. Peterson and E. J. Holland.

Marshall Ventilated Mattress Company, Chicago, Ill.—Ventilated engineer cushions. Represented by S. Goldschmidt.

Marshall & Huschart Machinery Company, Chicago.—Catalouges descriptive of various lines of machine tools. Represented by H. W. Jones.

Matthews-Davis Tool Company, St. Louis, Mo.—Two in One boring tool for cast-iron car wheels, Two in One boring tool for steel wheels, Davis expansion driving box and connecting rod, brass boring tools and other boring tools for machine shops. Represented by W. E. Moberly.

McCord & Co., Chicago.—Journal boxes, McCord locomotive lubricator, full size model of driving box with attachments for lubricator, full size model of pinless lid journal box, full size model of pin lid journal box, small models of journal box and equalizing wedge, five-feed lubricator, model showing driving mechanism of the McCord lubricator. Represented by W. J. Schlacles, R. L. McIntosh.

McCrosky Reamer Company, Inc., Meadville, Pa.—Adjustable reamers, quick change chucks and collets, Noneeda-tang sockets, expanding mandrels, Universal lamp brackets and friction drive chucks. Represented by F. P. Miller.

McMaster Car Supply Company, Chicago.—Steam specialties and railroad supplies; Homestead valves, New Century chain hoist, gravity vise, shop cranes. Represented by C. A. Denniston.

Nathan Manufacturing Company, New York.—Kellogg water alarm, cut-off lubricator with shut-off valve, reinforced clinger gages, Simplex injectors, coal pops. Represented by C. A. Nathan.

National Boiler Washing Company, Chicago.—Photographs and descriptions of the National Boiler Washing Company's hot water process of washing locomotive boilers, map showing locations of systems installed in the United States and Canada, National low-duty vacuum steam heating system. Represented by E. B. White, W. C. Bell.

National Machinery Company, Tiffin, Ohio.—National open die heads and sets of National interchangeable Case dies; also literature describing full line of bolt and nut machinery and forging machines. Represented by H. E. Lott and K. L. Ernst.

Oakgrove Handle Company, Cameron, Wis.—Boiler makers' malleable head flanging mauls and tinners, mallets made of ironwood blue and swamp-oak handle. Represented by J. C. Templeton.

O'Malley-Beare Valve Company, Chicago.—Full line of multiple valves. Represented by Edward O'Malley and H. A. Crews.

Otley Manufacturing Company, Chicago.—Eureka steam joint cement, Besto locomotive joint cement, Glos-Kote locomotive paint, lubricating graphite. Represented by B. F. Otley, W. A. Otley.

Pilliod Company, Swanton, Ohio.—Baker locomotive valve gear in a working model. Represented by Burton W. Mudge, Herbert Green, R. F. Darby.

Pratt & Letchworth Co., Buffalo, N. Y.—Buffalo journal boxes. Represented by H. C. Edson.

Pyle-National Electric Headlight Company, Chicago.—Descriptive literature. Represented by J. Will Johnson, J. W. Cleary.

Railway Age Gazette, New York.—*Railway Age Gazette* shop editions; Car Builders' Dictionary; Locomotive Dictionary; new book, "Railway Shop Kinks." Represented by L. B. Sherman, Roy V. Wright, John N. Reynolds, Kenneth G. Cloud, Stanley Deacon.

Ryerson & Son, Joseph T., Chicago.—Tube cutters, expanders, high-speed drills, reamers, Gisholt grinders, Gisholt high-speed tools, high-speed tool steel, carbon steels, forged button sets, small shop tools, track drills, single flue cleaners, Ryerson monthly stock list, tool steel and drill booklets. Represented by Fred Gardner, Paul Harders, F. L. Carroll, A. M. Mueller.

Safety Car Heating & Lighting Company, New York.—Locomotive reducing valve, steam heat traps, steam hose couplers, train line valves, model of thermo jet vapor and pressure steam heating system. Represented by J. H. Rodger, W. G. Hermsen.

Sinclair Company, Angus, New York.—*Railway and Locomotive Engineering*. Represented by Angus Sinclair, Allen G. Wood, J. A. Cassell.

Storrs Mica Company, Owego, N. Y.—Lanterns with mica globes. Represented by Charles P. Storrs.

Templeton-Kenly Company, Chicago.—Simplex car jacks. Represented by J. H. Hummel.

United States Metal and Manufacturing Company, New York.—Diamond steel pole, feasible drop brake staff, Galco head-lining, Wolfe automatic rail joint lock, Columbia lock nuts, Dunham hopper door device for coal and ore cars. Represented by J. J. Ross.

United States Metallic Packing Company, Philadelphia, Pa.—Gollmar bell ringers; King type and multi-angular metallic packing for piston rods, valve stems and air pumps; Leach sanders; indestructible oil cups. Represented by Morris V. Brewster, Clarence L. Mellor.

M. M. and M. C. B. Committees.

The M. M. and M. C. B. committees for 1911-1912 are as follows:

M. M. STANDING COMMITTEES.

1. *Advisory Technical:* G. W. Wildin (Chairman), (N. Y. N. H. & H.); A. W. Gibbs (Penna.); W. A. Nettleton (C. R. I. & P.).

2. *Revision of Standards:* T. W. Demarest (Chairman), (Penna. Lines); J. D. Harris, Roland Park, Md.; W. E. Dunham (C. & N. W.).

3. *Mechanical Stokers:* T. Rumney (Chairman); E. D. Nelson (Penna.); C. E. Gossett (M. & St. L.); J. A. Carney (C. B. & O.); T. O. Sechrist (C. N. O. & T. P.); S. K. Dickerson (L. S. & M. S.); George Hodgins, New York City.

M. M. SPECIAL COMMITTEES.

4. *Specifications for Cast-steel Locomotive Frames:* E. D. Bronner (Chairman), (Mich. Cen.); E. W. Pratt (C. & N. W.); R. K. Reading (Penna. R. R.); O. C. Cromwell (B. & O.); C. B. Young (C. B. & Q.); C. E. Fuller; L. R. Pomeroy (J. G. White & Co.).

5. *Main and Side Rods:* W. F. Kiesel (Penna.); H. Bartlett (B. & M.); G. Lanza (Mass. Inst. of Tech.); H. B. Hunt (Am. Loco.); W. E. Dunham (C. & N. W.).

6. *Consolidation:* D. F. Crawford (Chairman), (Penna. Lines); H. H. Vaughan (Can. Pac.); G. W. Wildin (N. Y. N. H. & H.).

7. *Safety Valves:* F. M. Gilbert, (Chairman), N. Y. C. & H. R.); James Milliken (P. B. & W.); W. D. Robb (Grand Trunk); Prof. E. C. Schmidt (Univ. of Ill.); W. J. Tollerton (C. R. I. & P.).

8. *Safety Appliances:* H. T. Bentley (C. & N. W.); M. K. Barnum (Ill. Cent.); C. B. Young (C. B. & Q.).

9. *Design, Construction and Maintenance of Locomotive Boilers:* D. R. MacBain (L. S. & M. S.); C. E. Chambers (C. of N. J.); T. W. Demarest (Penna. Lines); F. H. Clark (B. & O.); R. E. Smith (A. C. L.); E. W. Pratt (C. & N. W.); J. Snowden Bell, New York City.

10. *Contour of Tires:* W. C. A. Henry, (Chairman), (Penn. Lines); J. A. Pilcher (N. & W.); O. C. Cromwell (B. & O.); H. C. Oviatt (N. Y. N. H. & H.); O. M. Foster (L. S. & M. S.); G. W. Seidel (C. R. I. & P.).

11. *Steel Tires:* L. R. Johnson (Chairman), (Can. Pac.); J. R. Onderdonk (B. & O.); C. H. Hogan (N. Y. C. & H. R.); R. L. Ettenger (Southern); L. H. Turner (P. & L. E.).

12. *Flange Lubrication:* M. H. Haig (Chairman), (A. T. & S. F.); T. W. Heintzleman (So. Pac.); D. J. Redding (P. & L. E.); A. Kearney (N. & W.); W. C. Hayes (Erie).

13. *Minimum Requirements for Headlights:* D. F. Crawford (Chairman), (Penna. Lines); A. R. Ayers (L. S. & M. S.); C. H. Rae (L. & N.); F. H. Scheffer (N. C. & St. L.); J. W. Small (Mo. Pac.); F. A. Torrey (C. B. & Q.)

14. *Standardization of Tinware:* A. J. Poole (S. A. L.); M. D. Franey (L. S. & M. S.); J. C. Mengel (Penna.).

15. *Maintenance of Superheater Locomotives: R. D. Smith* (B. & A.); W. H. Bradley (C. & N. W.); H. H. Vaughan (Can. Pac.); Jas. Chidley (L. S. & M. S.); J. B. Kilpatrick (C. R. I. & P.).

16. *Arrangements:* H. T. Bentley (C. & N. W.).

M. C. B. STANDING COMMITTEES.

1. *Arbitration:* J. J. Hennessey (Chairman), (C. M. & St. P.); T. W. Demarest (Penna. Lines); J. S. Lentz (L. V.); W. A. Nettleton (C. R. I. & P.); E. D. Bronner (Mich. Cent.).

2. *Revision of Standards and Recommended Practice:* R. L. Kleine (Chairman), (Penna.); W. E. Dunham (C. & N. W.); T. H. Goodnow (L. S. & M. S.); W. H. V. Rosing (St. L. & S. F.); C. E. Fuller (U. Pac.); T. M. Ramsdell (Ches. & O.); O. C. Cromwell (B. & O.).

3. *Train Brake and Signal Equipment:* R. B. Kendig (Chairman), (N. Y. C. Lines); T. L. Burton (C. of N. J.); B. P. Flory (N. Y. O. & W.); E. W. Pratt (C. & N. W.); B. K. Reading (Penna.).

4. *Brake Shoe Equipment:* Prof. C. H. Benjamin (Chairman), (Purdue); C. D. Young (Penna. Lines); R. B. Kendig (N. Y. C. Lines).

5. *Coupler and Draft Equipment:* R. N. Durborow (Chairman), (Penna.); G. W. Wildin (N. Y. N. H. & H.); F. W. Brazier (N. Y. C. & H. R.); J. F. DeVoy (C. M. & St. P.); F. H. Stark (Pittsburgh Coal Co.); H. La Rue (C. R. I. & P.); H. L. Trimyer (S. A. L.).

6. *Rules for Loading Materials:* A. Kearney (Chairman), (N. & W.); R. E. Smith (A. C. L.); C. H. Osborn (C. & N. W.); L. H. Turner (P. & L. E.); W. F. Kiesel, Jr. (Penna.).

7. *Car Wheels:* William Garstang (Chairman), (C. C. C. & St. L.); W. C. A, Henry (Penna. Lines); A. E. Manchester (C. M. & St. P.); R. W. Burnett (Can. Pac.); R. L. Ettenger (Southern); J. A. Pilcher (N. & W.); O. C. Cromwell (B. & O.).

8. *Safety Appliances:* A. Stewart (Chairman), (Southern); A. La Mar (Penna. Lines); C. B. Young (C. B. & Q.); H. Bartlett (B. & M.); T. M. Ramsdell (C. & O.); M. K. Barnum (Ill. Cent.); W. O. Thompson (N. Y. C. & H. R.).

M. C. B. SPECIAL COMMITTEES.

9. *Car Trucks:* A. S. Vogt (Chairman), (Penna.); C. A. Seley (C. R. I. & P.); J. J. Tatum (B. & O.); F. P. Pfahler (W. & L. E.); R. W. Burnett (Can. Pac.); N. L. Friese (N. & W.); G. A. Hancock (St. L. & S. F.).

10. *Prices for Labor and Material:* F. H. Clark (Chairman), (B. & O.); G. E. Carson (N. Y. C. & H. R.); C. F. Thiele (P. C. C. & St. L.); Ira Everett (L. V.); B. Julien (U. Pac.); S. T. Park (C. & E. I.); H. E. Passmore (T. & O. C.).

11. *Springs for Freight Car Trucks:* F. M. Gilbert (Chairman), (N. Y. C. & H. R.); W. F. Kiesel, Jr. (Penna.); W. E. Sharp (Armour Car Lines); T. A. Lawes (S. Ind.); J. R. Onderdonk (B. & O.).

12. *Consolidation:* F. H. Clark (Chairman), (B. & O.); W. A. Nettleton (C. R. I. & P.); C. A. Schroyer (C. & N. W.).

13. *Train Lighting and Equipment:* T. R. Cook (Chairman), (Penna. Lines); C. A. Brandt (C. C. C. & H. L.); Ward Barnum (L. &. N.); J. H. Davis (B. & O.); E. A. Benson (Pullman Co.); D. J. Cartwright (Leh. Val.); E. W. Jansen (Ill. Cent.).

14. *Train Pipe and Connections for Steam Heat:* I. S. Downing (Chairman), L. S. & M. S.); C. A. Schroyer (C. & N. W.); W. C. Arp (Vandalia); T. H. Russum (B. & O.); J. J. Ewing (C. & O.).

15. *Nominations:* J. F. Deems (Chairman), N. Y. C. Lines); A. W. Gibbs (Penna.); C. A. Seley (C. R. I. & P.); W. H. Lewis (N. & W.); J. F. Walsh (C. & O.).

16. *Arrangements:* A. Stewart (Southern).

17. *Tank Cars:* A. W. Gibbs (Chairman), (Penna.); C. M. Bloxham (Union Tank Line); J. W. Fogg (B. & O.); Wm. McIntosh (C. of N. J.); S. K. Dickerson (L. S. & M. S.).

18. *Specifications for Tests of Steel Truck Sides and Bolsters for Cars of* 80,000, 100,000, 150,000 *Pounds Capacity:* Prof. E. C. Schmidt (Univ. of Ill.); J. S. Sheafe (Ill. Cent.); C. D. Young (Penna. Lines).

19. *Capacity Marking of Cars:* C. E. Fuller (U. Pac.); J. F. Deems (N. Y. C. Line); M. K. Barnum (Ill. Cent.); A. W. Gibbs (Penna.); F. H. Clark (B. &. O.).

20. *Revision of Constitution:* D. F. Crawford (Penna. Lines); C. A. Seley (C. R. I. & P.); A. Kearney (N. & W.).

21. *Lettering Cars:* D. F. Crawford (Penna. Lines); J. F. Deems (N. Y. C. Lines); F. H. Clark (B. & O.); W. A. Nettleton (C. R. I. & P.); F. A. Torrey (C. B. & Q.).

Individual Paper, Car Shop Apprentices: I. S. Downing (L. S. & M. S.).

Master Car and Locomotive Painters' Association.

The forty-second annual convention of the Master Car and Locomotive Painters' Association of the United States and Canada will be held at Atlantic City, N. J., September 12-15. The headquarters will be at the Hotel Rudolph. The subjects which will be discussed are: What is the Best Method of Finishing the Interior of Steel Passenger Equipment Cars, Appearance and Durability Considered, by W. H. Dutton (L. V.) and John Gearhart (Penna.); From a Sanitary Standpoint What Is the Best Treatment for Concrete or Cement Floors of Passenger Cars? by J. T. McCracken (Interboro Ry. of N. Y.); The Value of Chemical and Practical Tests of Railway Paint Shop Materials, by Prof. James H. Gibboney (Chief Chemist, Norfolk & Western); The Painting of Locomotives, Economy and Durability Considered, What Progress or Retrogression Has Been Made in Methods and Materials in Recent Years, by D. A. Little (Penna.), J. H. Kahler (Erie) and W. H. Wood (N. Y. C. & H. R.); Paint Mixing Vehicles—Their Use in Connection With Railway Equipment Painting, by Charles E. Copp (B. & M.); Varnish Removing from Car Interiors—What Portion of the Work Should Be Assigned to the Cabinet Maker? by A. H. Phillips (N. Y. O. & W.); Headlinings in Passenger Cars, by J. H. Whittington (C. & A.); James Gratton, (B. R. & P.), T. R. Cowan (C. P.) and E. T. Congdon (N. P.); What Are the Best Methods and Materials for Cleansing the Painted Parts of Locomotives, Preparatory to Repainting? by John D. Wright (B. & O.); Your Experience and Suggestions as to How Other Departments May Hinder or Help the Maximum and Daily Output from the Passenger Equipment Paint Shop, by T. J. Hutchinson (G. T.), George W. Lord (B. & M.) and George Schumpp (L. & N.); Baking Enamels—Their Use in Finishing Detachable Articles in the Railway Paint Shop, by Henry A. Polhemus (Erie); Linseed Oil—To What Extent Can Substitutes Be Safely Used? by W. O. Quest (P. & L. E.). Albert P. Dane, Reading, Mass., is secretary.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Burt, Boston, Mass.; next meeting, St. Paul, Minn., Sept. 19, 1911.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York; October 9-13, Atlantic City, N. J.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York; November 15, Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Oct. 17-19, 1911, St. Louis, Mo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, Monadnock Block, Chicago; annual convention, March 19-21, 1912, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—O. T. Harroun, Bloomington, Ill.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—D. J. Haner, 13 Park Row, New York; 3d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; annual, June 26, 1912, Quebec, Que.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; annual convention, May 22, 1912, Los Angeles, Cal.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago; annual, November 6-10, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; annual, June 24, 1912, New York.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York; December 12-13, Louisville, Ky.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tuesday in month, except June, July and Aug., Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLead, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—D. F. Jurgensen, 116 Winter St., St. Paul, Minn.; 2d Monday, except June, July and Aug., St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.; annual, Buffalo, N. Y.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio; annual, Aug. 15, Toledo, Ohio.

IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August, Des Moines.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION, OF UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass.; Sept. 12-15, 1911, Atlantic City, N. J.

NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

OMAHA RAILWAY CLUB.—H. H. Maulick, Barker Block, Omaha, Neb.; second Wednesday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY CLUB OF PITTSBURGH.—C. W. Alleman, P. & L. E., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; annual, May 12, 1912, Kansas City, Mo.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.; annual, Oct. 10, Colorado Springs, Colo.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.; September 12-15, St. Louis, Mo.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago; Sept. 12-14, St. Paul, Minn.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.; annual, October 20, Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—T. J. Walters, Oliver building, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; annual, August 29-September 1, Chicago.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Wednesday in month except July and August, Chicago.

WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, First National Bank bldg., Chicago; annual, January 16-18, Chicago.

The construction of the 24-mile section from Petchaburi, Siam, south to Cha Ahn, was provided for in the British-Siamese treaty of 1909. It will be from 600 to 700 miles long, and running through the Siamese portion of the Malay peninsula will extend the railway system of Siam to the northern boundary of the British Federated Malay States and connect with a British line on the south, forming thus a direct connection between Singapore, Malay States, and Bangkok, Siam. The Malay peninsula is especially noted for its rich tin mines, and it is expected that this railway will afford special facilities in transportation of such machinery as is needed to develop this industry in places where formerly the cost and difficulty of transportation made it impracticable.

Traffic News.

The first Western Pacific fruit train arrived in Salt Lake City from Sacramento in 35 hours, making the 782 miles at an average speed of 23 miles an hour.

The Oregon Short Line on July 16 began regular passenger service with motor cars between Ogden and Salt Lake. The cars make the trip in 45 minutes.

The Canadian Pacific has made a reduction in its freight rates on apples from points in Oregon and Washington to points on its main line, varying from 25 to 45 cents per 100 lbs.

Conductors on through trains of the Lehigh Valley now ask passengers whether they are planning a return journey and offer to make reservations in sleeping and parlor cars. The conductors provide passengers with a blank, which is filled out and returned.

B. F. Yoakum is quoted as saying that the gulf coast country will produce better crops than any other section that he has seen. A great deal of farming land is changing hands and a large number of tracts are being placed in cultivation through the sale of 40-, 80- and 160-acre-farms.

Heretofore apples have been charged the same rates for icing as fruit on the Atchison, Topeka & Santa Fe. On August 10 the Atchison is to charge the same rate for icing apples as has been applied to vegetables. It is estimated that this new regulation will make a saving of about $30 a car to shippers from California.

Representative Campbell, of Kansas, has introduced a bill in Congress to forbid all railways from letting contracts for the carriage of parcels or merchandise of any kind and requires the railways to perform all this service themselves after January 1, 1913. The object of the bill is to do away with express companies.

The Minneapolis, St. Paul & Sault Ste. Marie, which now brings its passengers into the Illinois Central terminals at Chicago, is to hereafter use the Grand Central station, which is owned by the Baltimore & Ohio Chicago Terminal Co., and which was used by the Wisconsin Central before it became the Chicago division of the Soo.

The California-Atlantic Steamship Company and the Mississippi Valley Transportation Company, by a traffic arrangement expect on the completion of the Panama canal to reduce rates from 30 to 40 per cent. on California products for Mississippi river points. It is said that the round trip via these lines from California points to New Orleans will be made in 35 days.

A geological survey report on the Big Horn coal fields in Alberta, Can., estimates that there are about 87 square miles of coal lands in this district containing 6,600,000,000 tons of workable coal. The fields are about 85 miles northwest of Baniff, about 140 miles southwest of Edmonton, and 70 miles south of the Grand Trunk Pacific and Canadian Northern routes.

It is said that another attempt will be made to raise capital to establish a line of steamers between Boston and some gulf port. This follows the failure of the Boston & Texas Steamship Line to raise $1,000,000 capital before June 1. The Boston & Texas Steamship Line promoters were unable to interest the large shippers in Boston to any great extent in the project.

The Southern Railway is warning the farmers and timber owners of South Carolina and other southern states against the damage to be expected from the Southern Pine Beetle, an insect which has appeared in several different sections and which may do great damage to trees. The Bureau of Entomology (Washington) has sent agents to Spartanburg, to study the situation.

The Transportation Committee of the Louisville (Ky.) Board of Trade has issued a bulletin calling attention to the fact that the fare from New York to Louisville is higher by $1.40 than is the fare from Louisville to New York. The committee has made an informal complaint to the Interstate Commerce Commission and now proposes if necessary to make a formal complaint.

The railway commission of Illinois has given notice to the express companies and shippers in that state that its order making reductions of about 20 per cent. in express rates will go into effect on August 1. After a preliminary hearing on July 19 of representatives of both express companies and shippers, at which no agreement was reached, the commission decided to make a tariff of its own covering the reductions.

According to the Western Passenger Association, there has been considerable loss to railways through the practice of commercial travelers in checking their baggage on a mileage book and then traveling on an interurban electric road. This method of doing business is to be stopped by requiring holders of mileage tickets to present them at the ticket office and obtain a passage ticket for the distance to be traveled. This passage ticket must be shown before baggage is checked.

The Southern Railway and the Alabama Great Southern, through the cotton culture department, are making experiments in the use of lime for the improvement of the soil. The soil in the Southeast is deficient in this respect, which results in an excess of acidity when vegetable matter decays. It is not intended that lime should be used as a substitute for fertilizer, but its use should result in a greater percentage of the plant food of the fertilizer being retained in the soil.

Exhibits will be made by the Southern Railway, the Mobile & Ohio, and the Alabama Great Southern at the Mississippi-Alabama fair, to be held at Meridian, Miss., October 16 to 21, and at the annual exposition of the Tri-State fair to be held in Memphis, Tenn., September 26 to October 4. These exhibits will include agricultural, horticultural, mining and forest products, and manufactured articles. Representatives of the railways will be on hand to give information about the territory represented and conditions, crops, land prices, and opportunities for agricultural and industrial projects in the southeast.

Chairman Adamson, of the House Committee on Interstate and Foreign Commerce, has introduced a bill in the lower house of Congress which provides that it shall be unlawful for any bank to accept a bill of lading as security for a loan without first ascertaining by actual inquiry and investigation that the shipment described in the bill of lading was really delivered to the carrier whose agent purported to have signed the bill of lading, and that any bank violating this provision may be punished by a fine of $5,000; and in addition that both the bank and the agent signing the bill of lading shall be liable to any subsequent holder for all losses sustained.

The Receivers and Shippers' Association of Cincinnati is sending out to its members and other shippers in Cincinnati "Cincinnati's Official Package Car Guide No. 1." This guide gives in concise form the points to which the railways running out of Cincinnati are forwarding package cars daily. The time of delivery is also shown. The guide especially calls attention to the unusually good package car service out of Cincinnati. For instance, nearly every point of importance in the New England states is reached through package cars loaded to Albany, New York and Boston. Shippers are asked to co-operate with the railways in this service, especially in sending their shipments as early as possible in the day to the freight sheds.

The postmaster general has opened bids for a contract to carry mail from Atlantic ports to Colon. The government is to require 16-knot steamers to furnish a weekly service between New York and Colon, calling at Charleston or Savannah, and also a service between New Orleans and Colon. The plan calls for a service also from Seattle and San Francisco to Panama, calling at San Pedro or San Diego. This service is to be put in operation in the fall of 1914. The opening of the Panama canal will enable steamers under this contract to carry freight from New York to San Francisco without breaking bulk. The government provides for a guarantee against the control of these steamship lines by competing railway companies. It is estimated that the cost of this service will be about $1,000,000 a year.

The Neptune, the largest collier in the United States navy, took on at Baltimore on July 21 a cargo of 13,000 tons of coal. The entire cargo of coal was taken on in one working day, and in addition 2,000 tons of fuel coal was placed in bunkers the following morning. The Neptune is equipped for burning oil as well as coal. The loading of July 21 was done at the Baltimore & Ohio's pier at Curtis bay, Baltimore. The receiving yard of this pier has a capacity of 2,500 cars, and it is now planned to

increase this to 3,500 cars. The pier is 800 ft. long, permitting four vessels to load at the same time, two on each side. The dumping capacity of the pier averages 1,000 tons an hour on each side. There are 25 coal pockets on each side of the pier. A force of 400 men is employed in loading vessels.

A committee consisting of W. B. Biddle, vice-president of the St. Louis & San Francisco; J. M. Johnson, vice-president of the Missouri Pacific; H. Haile, vice-president and traffic manager of the Missouri, Kansas & Texas, and C. G. Burnham, vice-president of the Chicago, Burlington & Quincy are to submit to a committee of traffic officers of the eastern railways entering St. Louis a protest against the assessment of transfer charges on through freight moved via the St. Louis gateway. The Wabash did not join in the complaint, because it is an eastern as well as a western line. The controversy concerns only through traffic and does not affect rates, except as to their division between eastern and western lines. The western lines now have to pay the transfer cost from East St. Louis to St. Louis of freight passing through St. Louis.

An agreement has been entered into between the Baltimore & Ohio and the Philadelphia Belt Line Railroad, which enables that company to reach several large storage warehouses of the Pennsylvania Warehousing and Safe Deposit Company, as well as to a number of other manufacturing and commercial institutions, and it affords direct track connection with the company's freight station at Pier 22, Delaware river. The agreement dated July 1, 1911, which includes an agreement with the Philadelphia & Reading gives the B. & O. the right to have its business handled over that portion of the Belt Line tracks on Delaware avenue, between Tasker and Callowhill streets, a distance of about 2 miles. The tracks are operated under an arrangement with the Pennsylvania Railroad and roads using them pay a switching charge which, with proportion of maintenance, averages from $2 to $2.50 per car.

Total Revenues and Expenses.

Logan G. McPherson, director of the Bureau of Railway Economics, in presenting a summary of revenues and expenses of steam roads in the United States for May, 1911:

"For the month of May, 1911, total operating revenues decreased from the same month of 1910 nearly $4,355,000, which was equivalent to $45 per mile, or 4.4 per cent. This decrease was nearly all in freight revenue. Operating expenses per mile also declined as compared with a year ago, the decrease amounting to 4.3 per cent. This decrease is the resultant of reductions amounting to 9.7 per cent. in maintenance of way, 2.9 per cent. in maintenance of equipment, and 3.4 per cent. in transportation expenses, on the one hand, and an increase of 6.4 per cent. in general expenses on the other hand. A decrease in transportation account is again shown this month, the rate of decrease in May being 3.4 per cent., as compared with 0.4 per cent. in April. The operating ratio was 69.5 per cent., as compared with 69.4 per cent. in May, 1910, 70.4 per cent. in April, 1911, and 69.4 per cent. in March, 1911.

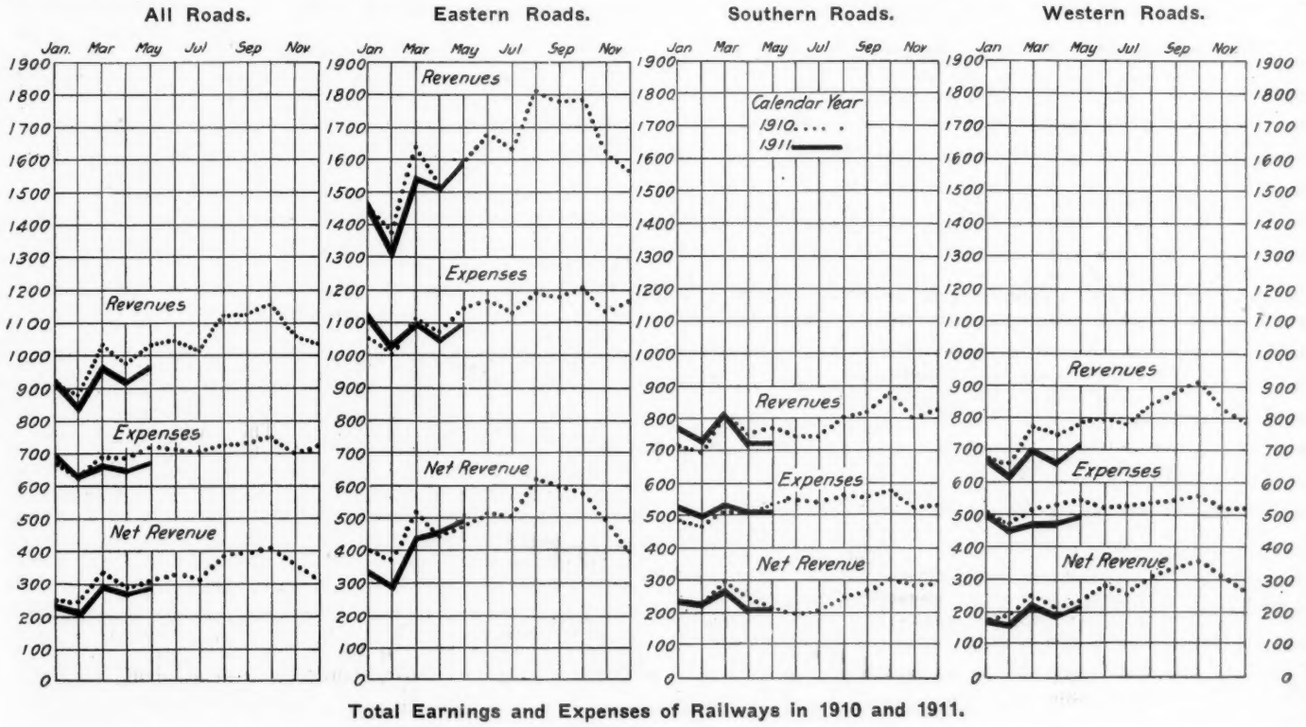
"Net operating revenue showed a decrease of $15 per mile, or 4.8 per cent. Net revenue per mile per day was $9.58, as compared with $9.16 in April. There was an increase in taxes of 0.2 per cent., and operating income, which is net revenue with outside operations included and taxes deducted, showed a decline of $15 per mile, or 5.5 per cent.

"Every group shows a decline in total operating revenues per mile. The heaviest decline was in the western group, amounting to 7.9 per cent. Passenger revenue decreased in every group, and freight revenue in every group except the East, where it remained practically stationary. In operating expenses there were also reductions for each of the three groups. The East shows a decline of 1.1 per cent., reductions in maintenance and traffic expenses being partly offset by an increase of 8.9 per cent. in general expenses. In the South there were decreases in all the accounts except transportation, where there was a slight increase. These resulted in a decrease in total operating expenses of 3.4 per cent. In the West there was a decrease in operating expenses of 6.9 per cent., the reduction amounting to nearly 14 per cent. in maintenance of way. The operating ratio shows but slight changes in the three groups. In the eastern group there is a small decrease, and in the western and southern groups slight increases.

"As in April the East again shows a gain in net revenue, amounting to 2.1 per cent. The South and West show declines of 8.1 per cent., and 10 per cent. respectively. Similar relative results are found in the case of operating income, the increase in the East being 2.6 per cent., and the decreases in the South and West being 10.8 per cent. and 11.4 per cent.

"For the eleven months of the fiscal year 1911 there is a slight decrease of operating revenues, for all roads, of one-tenth of 1 per cent. over the corresponding period of 1910. At the same time expenses increased 3.5 per cent., with the result that net revenue shows a decrease of 7.4 per cent. This decrease runs as high as 10.6 per cent. in the eastern group, 5.1 per cent. in the West, and 1.6 per cent. in the South. In operating income corresponding results are found.

"The calendar year continues to make an unfavorable showing



Total Earnings and Expenses of Railways in 1910 and 1911.

as compared with last year, because with a decrease in operating revenues there is not a correspondingly large decrease in operating expenses. Operating revenues for these five months for all roads declined 3.8 per cent., practically all the decrease being in freight revenue. Expenses decreased 1.7 per cent., with the result that net revenue shows a decrease of 8.5 per cent., and operating income of 10.2 per cent. As has been the case during the eleven months of the fiscal year, the heaviest decline in operating income is found in the eastern group, but the decreases in the other two groups are also considerable."

The following table shows how operating expenses were distributed in May, 1911, with comparisons.

Per cent .of total operating revenues:	May, 1911.	May, 1910.	Fiscal year ended June 30, 1910.
Maintenance of way and structures.	14.5	15.2	13.4
Maintenance of equipment.....	15.6	15.4	15.0
Traffic expenses	2.1	2.1	2.0
Transportation expenses	34.6	34.3	33.4
General expenses	2.7	2.4	2.5
Total operating expenses	69.5	69.4	66.3

A Train Load of Two Million Melons.

The Southern Pacific has practically completed one of the most remarkable crop movements in its history, in the handling of the cantaloupe crop in the Imperial Valley. The total number of cars shipped to date amounts to 2,600, with about 100 cars additional to move. This is approximately 900 cars more than harvested in any season before.

There were 56,000,000 pounds of ice used in the field and Yuma, Ariz., to take care of these shipments. The biggest day's picking was June 11, when 133 carloads were harvested. These cars were hauled from Brawley, the shipping center, to Imperial Junction on the main line, in one train, the length of which was 6,175 feet, considerably more than a mile long.

There were 324 crates in each car and 45 melons to the crate, or a total number of 14,580 melons in each car, and in the train 1,939,140 melons. When one appreciates the fact that each of these melons was handled at least three times, in picking, wrapping and crating, they can readily imagine the army of men necessary in the field to do this work.—*Los Angeles Times.* [This is probably the greatest number of cars of the same class loaded with the same products ever hauled in one train.]

The New Organization of Wells Fargo & Co.

The Wells Fargo & Company express now operates over the Atchison, Topeka & Santa Fe; Chicago, Milwaukee & St. Paul; Chicago, Milwaukee & Puget Sound; Chicago Great Western; Erie; Kansas City Southern, and the Southern Pacific and connecting and subsidiary lines, and will on August 1 also operate over the Missouri Pacific, the St. Louis, Iron Mountain & Southern, the Wabash, the Wheeling & Lake Erie, the Texas & Pacific, the International & Great Northern, and the St. Louis & Southwestern.

The total mileage operated in this country on August 1 will be 66,000 miles.

Under the new organization the general superintendents of southern department and greater New York department will report to the president. In the absence of president, the general superintendent of Southern department will report to the vice-president at San Francisco, and the general superintendent of greater New York department will report to vice-president at Chicago; the general superintendents of Northern, Eastern, Central and Chicago departments will report to the vice-presidents at Chicago; the general superintendent of Southwestern department will report to the vice-presidents at San Francisco.

R. A. Wells, vice-president and general manager, at Kansas City, having resigned, that position will be discontinued on August 1, 1911.

A. W. Zimmermann, secretary and treasurer, having resigned, that joint position is discontinued.

The general officers of the company are: C. H. Gardiner, secretary ,New York; B. H. River, treasurer, New York; Richard Burr, comptroller, New York; E. E. Honn, general auditor, New York; C. W. Stockton, commerce counsel and taxes, New York; J. D. Ludlow, general traffic manager, New York; C. R. Graham, traffic manager, San Francisco; G. F. Johnson, traffic manager, Houston; G. S. Lee, traffic manager, New York; D. T. Mervine, general superintendent of transportation, Chicago; E. E. White, general superintendent of stables and street equipment, Chicago; W. E. Scott, superintendent money order department, New York; W. W. Fulmer, general purchasing agent, Chicago; A. G. Brandenburg, general supply agent, Chicago.

The greater New York department officers are C. C. Fowler, superintendent, New York.

The Chicago department officers are: H. B. Calkins, general superintendent, Chicago; T. P. Earl, superintendent, Chicago.

The Eastern department officers are: T. M. DeWitt, general superintendent, Cleveland, to whom the following superintendents will report: E. J. Crowe, New Jersey and Eastern New York division, New York; E. A. Muncey, Western New York and Pennsylvania Division, Buffalo; W. F. Wallis, Ohio Division, Akron; F. Morrow, Indiana and Michigan Division, Toledo.

The Northern department officers are: G. B. Simpson, general superintendent, Chicago, to whom the following superintendents will report: H. E. Manchester, Central Illinois Division, Chicago; S. W. Gibson, Northern Illinois and Southern Wisconsin Divisions, Chicago; E. E. Westfall, Northern Wisconsin Division, Milwaukee; E. G. Wetzel, Minnesota Division, St. Paul; A. G. Eddy, Iowa Division, Des Moines; J. E. O'Neill, Dakota Division, Omaha.

The Central department officers are: O. J. Peterson, general superintendent, St. Louis, to whom the following superintendents will report: J. M. Crawford, Eastern Missouri Division, St. Louis; H. W. Campbell, Western Missouri Division, Kansas City; H. W. Walker, Eastern Kansas Division, Kansas City; E. E. Brayman, Western Kansas Division, Wichita; W. R. Buckmaster, Northern Kansas and Nebraska Divisions, St. Joseph; M. N. Kendall, general agent, St. Louis; I. Longaker, general agent, Kansas City.

The Southern department officers are: G. A. Taft, general superintendent, Houston, to whom the following superintendents will report: F. L. Selleck, Northern Texas Division, Dallas; C. L. Mackenzie, Southern Texas Division, Houston; C. N. Campbell, Western Texas Division, San Antonio; C. B. Kinne, Eastern Texas Division, Tyler; J. A. Hyde, Louisiana Division, New Orleans; L. O. Head, Arkansas Division, Little Rock; E. H. Stevens, Oklahoma Division, Oklahoma City; J. E. Crews, general agent, New Orleans.

The Southwestern department officers are: E. R. Jones, general superintendent, Los Angeles, to whom the following superintendents will report: J. M. Williams, Arizona and West Coast Mexico Division, El Paso; A. T. Payne, Colorado and New Mexico Division, Denver; J. F. Baker, Southern California Division, Los Angeles; E. E. McMichael, Nevada and Utah Division, Salt Lake City; F. O. Reed, general agent, Los Angeles.

The Northwestern department (including Alaska-Yukon)—the following superintendents will report to the vice-president and general manager, San Francisco: C. R. Teas, in charge of both Local and Bay Terminal Service, San Francisco; T. A. Woods, Central California Division, Oakland; N. K. Lockwood, Northern California Division, Sacramento; W. E. Carpenter, Oregon, Puget Sound and Alaska-Yukon Division, Seattle; J. W. Hill, assistant superintendent, Alaska-Yukon Division, Skagway and Seattle.

INTERSTATE COMMERCE COMMISSION.

The Spokane and Intermountain cases are abstracted elsewhere in this issue.

COURT NEWS.

The Illinois Central has bought the West Pullman Car Works for $190,000. This arrangement is the final settlement of the suits against the West Pullman Car Works in connection with the car repair frauds. These suits involved about $1,250,000.

The master in chancery appointed by the United States district court on July 19 has submitted his report in the case of the Chicago, Peoria & St. Louis, which company attacked the two-cent passenger rate law of the state of Illinois as unconstitutional insofar as that company is concerned. The master finds that the law is confiscatory, and is therefore unconstitutional.

A report has been filed by Walter M. Allen, master in chancery of the federal court for the southern Illinois district, holding that the Illinois 2-cent fare law is unconstitutional as affecting the Chicago, Peoria & St. Louis, because confiscatory. He says that the road has been unable to earn a return of 6

per cent. on its investment from its state business, and recommends that the decree be changed to allow it to charge a maximum of 3 cents a mile to interstate passengers.

The Southern Pacific has appealed to the United States Supreme Court from the decision of the circuit court, which sustained the rate making power of the Oregon Railroad Commission in a case in which the railway company claimed that a rate between two points within the state directly affected interstate commerce. The railway company claimed that in such a case the Oregon Railroad Commission did not have the power to make a change in a state rate. The circuit court ruled against the railway company's contention.

U. S. Commerce Court.

INTERSTATE COMMERCE COMMISSION SUSTAINED.

James J. Hooker, President of the Receivers' and Shippers' Association of Cincinnati, v. the Interstate Commerce Commission, the C. N. O. & T. P., et al. Opinion by Judge Carland:

This is an appeal from the case in which the Interstate Commerce Commission found that although the rates complained of to Chattanooga, over the C. N. O. & T. P. could be reasonably reduced in the specific case of the C. N. O. & T. P., that such a reduction would so seriously affect rates on other roads that it would be unreasonable. The commission said "if it is our duty to take this railway by itself and to determine the reasonableness of these rates by reference to cost of construction, maintenance, and profit on investment, we think the complainants have established their case." It is claimed by the petitioners that the commission having found a so-called 60-cent schedule reasonable for the C. N. O. & T. P., considered by itself, it was bound to establish such a schedule. The commission said in its order that it must be remembered that any reduction from the North to Atlanta and corresponding territory would undoubtedly be followed by similar reductions from the East.

It is apparent, therefore, that to make any considerable change in this rate from Cincinnati to Chattanooga will work a lowering in rates throughout this entire southern territory. It should be noted that Chattanooga is not complaining of unfair treatment as compared with other southern points.

It appears from the findings of the commission that it has always refused, in the consideration of the reasonableness of a rate or rates, to consider only the particular carrier making the rate by itself, but on the contrary has always considered the rates in a particular territory affected by the change of the particular rates in question. The supreme court in *Texas & Pacific v. Interstate Commerce Commission* held that in passing on questions arising under the act, the commission or the court is empowered to fully consider all the circumstances and conditions that reasonably apply to the situation, and that in the exercise of its jurisdiction the tribunal may and should consider the legitimate interests as well of the carrying company as of the traders.

Under the second proposition we cannot disturb the order of the commission on a theory that it fixed rates so high as to be violative of the fifth amendment to the constitution unless the constitutional rights of the shippers were threatened.

While we are of the opinion that our power to review the order of the commission fixing a schedule of rates is co-extensive with the limits of the protecting shield of the constitution, still it must clearly appear that such protection in some degree has been taken away. The commission found that the rates complained of were not clearly excessive; much less are we able to find that the rates authorized by the commission in the order complained of, and which were a reduction of the former rates, are clearly excessive. While earnings may be considered in the fixing of a reasonable rate, rates necessarily cannot be based on earnings alone. A reasonable rate is a rate which yields to the carrier a fair return on the value of the property, and it is a rate which is fair to the shipper for the service rendered, and when this rate is established, if it results in large profits to the carrier the carrier is fortunate in its business, and if it results in a loss of the earning power so that the business of the carrier is unprofitable, the carrier is unfortunate; but the rate may not be lowered or raised merely on the ground that a carrier is either making or losing money, provided always that the rate is reasonable and just. Indeed, it has been held that the earning power of the rate is one of the least considerations in fixing a just and reasonable rate. The complaint is dismissed therefor.

Judge Archibald dissenting:

There is no right, as I look at it, to consider the effect of a rate or rates to be established on those of other roads between the same points or to maintain such rates at a figure which is necessary to meet the needs of those roads, and so far as the order of the commission was induced by any such idea it cannot be sustained. . . . It cannot be thought that the construction of a second or third road should be made the basis for higher rates. The standard should be that of the original and most favored line. The shipper is entitled to the benefit of any advance in transportation facilities that may be made. The commission in its order put on a parity the Cincinnati Southern, with its 336 miles of line, without branches, from Cincinnati to Chattanooga, and the Louisville & Nashville and the Nashville, Chattanooga & St. Louis, with their routes of 450 miles and their more or less unremunerative branch line mileage. This in my judgment they had no right to do.

Judge Mack concurs in the dissent.

I. C. C. REVERSED IN THE LOS ANGELES SWITCHING CASES.

Atchison, Topeka & Santa Fe et al. v. the Interstate Commerce Commission and the United States. Opinion by Judge Carland:

This is a petition for a temporary injunction by the complainants restraining the enforcement of the order of the Interstate Commerce Commission. The complainants make deliveries of carload freight from and to the public in general in Los Angeles on public team tracks, and this service is in all respects sufficient and adequate. The facilities for handling and delivery of L. C. L. freight are sufficient for double the amount of freight that can be tendered in any day. For the accommodation of certain shippers and for their benefit in loading and unloading, industrial tracks have been built. In the contracts covering building and maintenance of these tracks it was provided that the shipper shall pay the cost of construction and that the tracks shall be under the full control of the railway company, but the business of the shipper for whom they are built shall always have preference. A charge of generally $2.50 per car has been paid by the shippers using these tracks for the special service performed by the railway of receiving or delivering freight at the plant or industry. in question. The general charge for drayage in Los Angeles is 50 cents a ton, which makes the cost to the consignee $10 on a carload of 20 tons, $15 on a carload of 30 tons, etc., as against the charge of $2.50 imposed by the petitioners for delivering the consignment to, or receiving the shipment at, the door of the consignee. Railways are exempt from the duty of personal delivery and bound only to carry goods to the depot and hold them for delivery when the owner calls for them. It is found in the order of the commission that the charge of $2.50 per car for delivering and receiving carload freight from industrial tracks within the switching limits of Los Angeles is in violation of the Act to Regulate Commerce. This is a conclusion of law and is open to inquiry in this court. We think that it is fair to say that the conclusion of the commission that the charge of $2.50 per car for the service named was illegal was based on two findings, first, that the industrial track on which the service was rendered is a terminal facility of the railway and not a plant facility of the industry; and second, that the service for which the charge is made is the same service as that which is performed by the carrier in delivering freight at its depot or team tracks. The real question presented is, is the carrier lawfully entitled to charge $2.50 per ton for the service performed on the industrial tracks? It is a service, regardless of the ownership of the track.

In cases where there is a substantial conflict in the evidence or testimony on which a finding of the commission is based we would feel bound by the findings unless clearly and palpably against the weight of the testimony, but we do not think that this court is concluded by the finding based on admitted facts which in no wise tend to sustain the conclusion reached.

To say that the transportation of cars and freight to and from industrial plants located from one-fifth of a mile to seven miles from the main track of the carrier is the same service which the carrier performs and for which it is paid by the general tariff charges when it delivers freight at its depot in Los Angeles or at the team tracks, is so contrary to the admitted physical facts as to be wholly untenable. We see no reason why the railways may not charge a reasonable price for this service, and the charge in question is conceded to be reasonable. An order will be granted suspending the order of the Interstate Commerce Commission until further order from this court.

Judge Mack dissents.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF MAY, 1911. (SEE ALSO ISSUES JULY 7 AND 14.)

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	143	$75,896	$43,754	$130,336	$21,567	$26,419	$4,392	$50,306	$5,366	$108,050	$22,286	$9	$4,680	$17,615	—$15,055
Ann Arbor	301	111,629	37,615	158,568	32,549	23,678	4,345	55,355	6,378	122,305	36,263	—2,830	14,265	19,168	5,443
Arizona Eastern	364[1]	119,309	35,546	162,096	20,600	17,109	1,847	44,704	6,027	90,287	71,809	49	5,211	66,647	—13,671
Atlantic City	166	61,131	105,215	173,926	46,305	15,448	1,583	64,761	956	129,053	44,873	—5,562	7,000	32,311	16,134
Buffalo & Susquehanna *R. R.*	265	149,289	8,269	162,570	25,010	28,334	1,722	57,358	5,795	118,219	44,351	.....	2,600	41,751	—
Buffalo & Susquehanna *Ry.*	91	41,471	8,171	51,967	6,370	26,894	665	22,826	3,042	59,797	—7,830	—485	1,400	—9,715	—
Carolina, Clinchfield & Ohio	236	145,211	12,195	160,911	13,903	22,685	6,709	38,030	7,705	89,033	71,878	109	5,500	66,487	40,686
Carolina, Clinchfield & Ohio of S. C.	18	8,744	1,251	10,471	400	63	1,260	2,146	434	4,303	6,168	.....	200	5,968	4,404
Central of Georgia	1,915	545,719	273,723	898,979	132,617	182,177	33,839	324,314	49,776	722,723	176,256	5,700	45,470	136,486	81,996
Charleston & Western Carolina	340	121,919	26,478	155,312	26,913	19,796	2,918	65,428	5,899	120,954	34,358	.....	4,475	29,883	13,387
Chicago, Indianapolis & Louisville	616	357,711	137,325	545,515	71,412	76,749	17,429	183,519	17,444	366,553	178,962	.....	22,500	156,462	—17,233
Chicago, Peoria & St. Louis	255	95,546	22,708	126,858	16,315	22,818	7,405	58,608	5,550	110,696	16,162	.....	4,500	11,662	1,048
Colorado Midland	337	112,849	24,811	150,457	30,537	18,865	6,908	62,670	5,118	124,098	26,359	—799	5,709	19,851	—4,997
Detroit, Toledo & Ironton	441	98,460	11,271	124,527	52,365	12,997	2,456	78,499	8,017	154,334	—29,807	62	6,712	—36,457	—39,747
Gulf & Ship Island	307	117,954	33,408	116,217	23,132	31,668	1,305	47,965	8,169	112,239	53,978	.....	5,108	48,870	—10,645
International & Great Northern	1,159	443,249	163,662	654,062	145,747	107,416	20,459	314,562	22,673	610,857	43,205	139	20,500	22,844	—50,202
Louisiana & Arkansas	255	105,418	15,598	125,139	20,140	18,173	2,631	33,489	4,632	79,065	46,074	.....	6,394	39,680	—6,500
Louisiana Ry. & Nav. Co.	350	115,933	21,803	150,661	15,394	10,243	5,223	52,377	5,685	88,922	61,739	.....	4,400	57,339	31,672
Louisiana Western	207	120,583	54,591	183,152	34,164	24,769	6,497	76,216	7,917	149,563	33,589	519	5,876	28,232	—18,225
Midland Valley	324	81,359	35,945	124,058	27,956	20,246	2,923	34,354	5,676	91,155	32,903	675	5,475	28,103	7,988
Missouri, Kansas & Texas	1,737[2]	843,287	352,848	1,295,225	86,884	210,267	35,577	392,292	51,543	776,563	518,662	746	58,500	460,908	—
Nevada Northern	165	108,014	10,238	121,017	11,769	13,444	377	26,494	3,328	55,412	65,605	.....	6,300	59,305	—21,572
New Orleans Great Northern	282	104,542	31,403	146,027	19,657	20,763	2,867	45,213	7,285	95,785	50,242	—70	2,000	48,172	—23,799
New Orleans, Mobile & Chicago	404	107,120	26,823	145,053	20,507	12,711	2,683	45,493	7,081	88,475	56,578	.....	4,268	52,310	383
Pecos & Northern Texas	296[3]	112,759	27,090	146,002	16,827	28,891	2,989	49,206	4,943	102,956	43,046	.....	2,547	40,499	12,456
St. Joseph & Grand Island	319	94,791	36,520	142,757	37,060	19,139	6,252	58,734	7,030	128,215	14,542	.....	5,711	8,831	38,143
St. Louis & San Francisco	4,732	2,005,503	878,932	3,138,099	309,436	415,146	82,800	1,181,712	86,331	2,075,425	1,062,674	.....	153,814	908,860	103,338
San Antonio & Aransas Pass	727	198,804	78,432	295,047	78,779	50,937	5,978	122,990	12,501	271,185	23,862	.....	14,500	9,362	—36,960
Santa Fe, Prescott & Phoenix	364[4]	100,016	36,652	144,645	27,617	13,114	3,774	40,201	5,579	90,285	54,360	.....	103	54,257	—15,395
Seaboard Air Line	3,046[5]	1,258,021	373,847	1,825,423	244,313	224,680	56,008	643,895	55,795	1,224,691	600,732	—1,134	72,000	527,598	17,879
Southern Kansas of Texas	125	101,880	14,802	121,482	11,892	21,991	2,935	44,149	4,731	85,698	35,784	.....	1,973	33,811	6,641
Tennessee Central	294	98,626	32,502	138,407	20,796	13,444	4,883	42,931	7,602	89,656	48,751	.....	5,309	43,441	10,059
Trinity & Brazos Valley	462	78,580	26,695	111,252	35,042	24,776	9,938	63,949	10,024	143,729	—32,477	.....	3,500	—35,977	—14,982
Vicksburg, Shreveport & Pacific	171	52,132	37,315	99,507	22,953	21,991	3,667	36,128	4,320	89,059	10,448	—395	6,400	3,653	—20,993
Virginia & Southwestern	240[6]	109,277	13,505	126,386	11,978	23,027	1,630	32,649	4,246	73,530	52,856	.....	4,329	48,527	41,568
Western Maryland	543	507,862	74,749	607,345	94,148	60,770	8,096	194,682	13,831	371,527	235,818	608	21,000	215,426	—51,274
ELEVEN MONTHS OF FISCAL YEAR, 1911.															
Alabama & Vicksburg	143	$1,042,234	$456,444	$1,621,022	$229,370	$273,664	$41,758	$559,605	$59,811	$1,164,208	$456,814	$631	$51,467	$405,978	—$34,696
Ann Arbor	301	1,222,857	443,736	1,776,529	239,824	227,083	44,035	613,679	77,947	1,202,568	573,961	—6,117	154,526	413,318	46,193
Arizona Eastern	364[1]	1,059,681	367,540	1,521,969	349,436	137,145	20,926	425,093	45,361	977,961	544,008	29	66,242	477,795	—178,532
Atlantic City	166	676,728	1,044,876	1,812,693	318,513	163,332	29,277	881,712	14,238	1,407,072	405,621	—55,063	77,000	273,558	68,484
Buffalo & Susquehanna *R. R.*	265	1,400,793	90,207	1,551,349	288,013	297,678	18,926	571,150	61,522	1,237,289	314,060	.....	26,671	287,389	—
Buffalo & Susquehanna *Ry.*	91	490,210	101,916	618,796	73,428	311,492	7,774	266,028	30,722	689,444	—70,648	—461	17,329	—88,438	—
Carolina, Clinchfield & Ohio	236	1,366,929	142,390	1,549,173	145,765	215,337	63,074	344,709	90,542	859,427	689,746	2,092	60,500	631,338	335,139
Carolina, Clinchfield & Ohio of S. C.	18	80,389	15,974	99,204	6,483	866	10,592	25,267	5,744	48,952	50,252	.....	2,200	48,052	41,505
Central of Georgia	1,915	7,798,174	3,188,785	12,017,962	1,617,031	2,017,902	359,861	3,893,817	457,365	8,345,976	3,671,986	70,382	502,898	3,239,470	227,449
Charleston & Western Carolina	340	1,391,100	327,315	1,798,119	314,251	206,591	34,284	627,008	45,048	1,227,182	570,937	.....	49,225	521,712	150,347
Chicago, Indianapolis & Louisville	616	3,709,403	1,446,801	5,660,385	739,792	800,645	184,506	2,010,224	165,804	3,890,971	1,769,414	.....	247,500	1,521,914	—153,142
Chicago, Peoria & St. Louis	255	1,238,803	278,948	1,597,967	232,542	338,621	80,165	730,541	64,080	1,445,949	152,018	.....	48,500	103,518	—124,631
Colorado Midland	337	1,285,920	298,117	1,772,164	254,041	375,703	58,558	790,484	60,938	1,539,724	232,440	—7,023	89,091	136,326	—149,221
Detroit, Toledo & Ironton	441	1,376,198	148,073	1,671,328	375,395	224,393	29,755	899,146	64,443	1,593,132	78,196	—147	73,833	4,216	—15,592
Gulf & Ship Island	307	1,345,040	373,084	1,851,228	234,109	328,660	17,449	534,155	87,767	1,202,140	649,088	.....	55,082	594,006	13,688
International & Great Northern	1,159	5,983,540	1,952,168	8,475,858	1,310,925	1,277,990	216,313	3,600,773	243,697	6,649,698	1,826,160	—3,424	234,500	1,588,236	342,702
Louisiana & Arkansas	255	1,108,983	175,103	1,334,319	214,167	188,115	26,831	358,100	49,548	836,761	497,558	.....	33,859	463,699	17,500
Louisiana Ry. & Nav. Co.	350	1,206,592	222,715	1,559,850	248,282	182,347	54,817	631,170	66,773	1,183,389	376,461	.....	48,400	328,061	107,439
Louisiana Western	207	1,239,070	618,889	1,948,544	256,956	273,149	70,914	597,360	83,424	1,281,803	666,741	1,610	74,856	593,495	—5,695
Midland Valley	324	797,146	381,231	1,248,362	234,656	191,118	25,736	367,996	75,618	895,124	353,238	27,092	60,231	320,099	—29,656
Missouri, Kansas & Texas	1,737[2]	10,503,272	4,398,559	15,959,138	1,981,168	2,311,509	412,257	5,327,608	488,758	10,521,300	5,437,838	2,675	639,083	4,801,430	—
Nevada Northern	165	1,171,639	126,055	1,337,237	81,665	153,740	3,976	291,846	39,207	570,434	766,803	.....	53,507	713,296	—93,976
New Orleans Great Northern	282	1,091,613	339,402	1,555,334	228,592	215,127	33,001	452,781	61,104	990,605	564,729	—932	21,511	542,286	15,850
New Orleans, Mobile & Chicago	404	1,267,282	310,669	1,687,693	232,158	139,256	31,277	507,395	89,381	999,467	688,226	.....	48,051	640,175	94,627
Pecos & Northern Texas	296[3]	1,131,733	286,752	1,484,804	204,630	295,053	23,952	595,123	51,160	1,079,918	404,886	.....	34,898	369,988	—88,976
St. Joseph & Grand Island	319	1,028,467	417,665	1,574,806	337,907	224,305	70,664	679,951	70,214	1,383,041	191,765	489	64,747	127,507	118,041
St. Louis & San Francisco	4,732	24,631,728	10,380,232	37,705,977	4,728,487	5,107,309	933,425	13,524,565	1,098,493	25,392,279	12,313,698	.....	1,609,058	10,704,640	723,506
San Antonio & Aransas Pass	727	2,627,057	995,828	3,842,075	783,147	532,778	56,462	1,452,624	114,117	2,939,128	902,947	.....	118,000	784,947	—131,755
Santa Fe, Prescott & Phoenix	364[4]	1,049,389	397,723	1,547,379	275,245	144,527	31,387	468,781	62,354	982,294	565,085	.....	1,153	563,932	—57,803
Seaboard Air Line	3,046[5]	13,659,358	4,348,676	20,067,340	2,591,485	2,681,164	660,773	6,812,814	566,716	13,312,952	6,754,388	—9,314	746,000	5,999,074	262,011
Southern Kansas of Texas	125	1,130,110	182,565	1,364,411	158,112	309,024	22,822	465,776	46,786	1,002,520	361,891	.....	18,852	343,039	—105,776
Tennessee Central	294	955,859	357,707	1,392,275	199,338	145,793	53,587	432,744	90,130	921,592	470,683	.....	45,111	425,572	57,399
Trinity & Brazos Valley	462	1,440,935	340,644	1,855,537	357,782	307,242	90,909	865,265	120,126	1,741,324	114,213	.....	39,685	74,528	33,872
Vicksburg, Shreveport & Pacific	171	790,760	447,224	1,353,232	225,074	236,548	36,841	422,731	49,807	971,001	382,231	—1,206	66,418	314,607	28,443
Virginia & Southwestern	240[6]	1,080,545	139,540	1,261,617	149,309	277,073	17,000	376,536	42,958	858,876	402,741	.....	48,785	353,956	76,673
Western Maryland	543	5,436,755	883,470	6,593,982	763,026	777,115	97,686	2,258,413	147,768	4,044,008	2,549,974	—2,365	219,000	2,328,609	—

Mileage operated on May 31, 1910—[1] 308 miles; [2] 1,724 miles; [3] 225 miles; [4] 257 miles; [5] 3,013 miles; [6] 188 miles. — Indicates Deficits, Losses and Decreases.

I. C. C. DEMURRAGE ORDER ON PRIVATE CARS UPHELD.

The Proctor & Gamble Co. v. United States, et al. Opinion by Judge Archibald:

The Proctor & Gamble Co. own private side tracks at Ivorydale, Ohio; Port Ivory, N. Y., and Kansas City, Kan., and also own a number of private cars, including tank cars. After the uniform demurrage code which was prepared by the National Association of Railway Commissioners and a member of the I. C. C., was put in force in February, 1910, the Proctor & Gamble Co. complained to the Interstate Commerce Commission against the rule which provided that private cars standing on the private switch track of the company owning the cars was subject to demurrage. The proceedings in this court are brought to set aside the order of the commission dismissing the complaint. The allegation being made that the rule, in so far as it provides that privately owned cars under lading on private tracks are in railway service and so subject to a demurrage charge until lading is removed, is unreasonable.

The Interstate Commerce Commission and the United States deny that this court has jurisdiction because the Interstate Commerce Commission merely dismissed the complaint which was made to it and granted no affirmative relief.

The real argument against the right of suit, where the complaint of a shipper has been dismissed, is that the denial of relief by the commission is not an order of which the court can lay hold. . . . It is clear that the shipper would have been entitled in one form or another to redress in court against an unjust and unlawful charge imposed by a carrier such as the one here is alleged to be, and the Proctor & Gamble Co. could have compelled the carriers to bring suit to collect the charge for demurrage, or could have gotten an injunction against this charge from a court of equity. Indeed, the only question would seem to be whether this is not the course which the company, even considering the provisions of the statute, was required to pursue, the legality of the demurrage charge being the only thing involved, and that being a matter for the courts and not for the commission to decide. It was decided, however, in *Texas & Pacific v. Abilene Cotton Oil Co.* that redress by a carrier against an unjust rate must be sought in the first instance by proceedings before the commission, and this was repeated in *Baltimore & Ohio v. Pitcairn Coal Co.*, where it was held that for the correction of an unequal distribution of cars, a shipper was similarly required to go to the commission and could not in advance of its option seek to remedy by mandamus the discrimination alleged. But if that be so, there can be no serious question as to the propriety of the present petitioner going first to the commission.

While the dismissal of a complaint by the commission in a case like the present one may not in strictness be an order, it virtually approves it and makes it operative.

But while the jurisdiction of this court in the premises is thus sustained, we are forced to conclude on a consideration of the merits that the demurrage charge in controversy was unlawfully imposed, and that the petitioner, therefore, has no just grounds for complaint.

The argument against the charge proceeds on a misconception. If this were an exaction for the use by the shipper of his own cars standing on his own track, the right to it might well be questioned; and it is difficult also to see how the imposition of demurrage on private cars for delay in unloading is necessary to prevent unjust discrimination.

It is not necessary to decide whether a railway can refuse or be required to haul private cars. Whatever may be its duty in this regard, it is conceded that such terms may be imposed as a condition to hauling them as have a reasonable relation to the transportation service in which they are employed. In using private cars, whether as supplementary to or in place of its own, a railway is entitled to require that there shall be a reasonably dependable supply. Exaction of demurrage from private cars the same as others is therefore neither arbitrary nor unjust, nor is it a violation of the owner's rights; it is simply a condition to the acceptance of his cars which the carriers have found it necessary to impose, and with which, therefore, he must expect to comply. The petition is dismissed.

Presiding Judge Knapp concurring:

The conclusion reached in this case is undoubtedly correct and I agree with the foregoing opinion only so far as it questions the right to enforce the demurrage rule for the purpose of preventing undue preference to owners of private cars.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

For officers of the Wells Fargo & Co. express, see an item in traffic news.

E. M. Curtis, assistant general auditor of the Missouri Pacific, has been appointed general assistant, with headquarters at St. Louis.

E. H. Lycett, auditor of disbursements of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, at St. Louis, Mo., has been appointed general accountant. J. G. Livengood, auditor of the Erie Railroad, succeeds Mr. Lycett, with office at St. Louis.

Operating Officers.

For officers of the Wells Fargo & Co. express, see an item in traffic news.

Noah Suloff, general manager of the Tuscarora Valley, with office at Port Royal, Pa., has resigned.

W. H. de France has been appointed general superintendent of the Louisiana Southern at New Orleans, La., incident to the leasing of that road by the St. Louis & San Francisco.

W. A. Johnson, who has resigned as general freight and passenger agent of the Interstate Railroad, as noted under Traffic Officers, will continue to act as superintendent, with office at Stonega, Va.

F. R. Blunt, trainmaster of the Chicago Great Western at St. Joseph, Mo., has been appointed superintendent of the western division, with headquarters at Clarion, Ia., succeeding W. E. Carson, transferred.

F. M. Liston, having resigned as purchasing agent of the Ocean Shore Railroad, that office is abolished and the duties of same assumed by L. H. Landis, general manager, with headquarters at San Francisco, Cal.

C. E. Carson, superintendent of the Western division of the Chicago, Great Western, with headquarters at Clarion, Ia., has been appointed superintendent of the Northern division, with office at St. Paul, Minn., succeeding G. W. Vanderslice, resigned; effective August 1.

The headquarters of the superintendent of the Syracuse & Utica division of the Delaware, Lackawanna & Western has been transferred from Syracuse, N. Y. to Binghamton, effective August 1, and the jurisdiction of the superintendent will be extended over the Binghamton terminal.

F. W. Brown, superintendent of terminals of the Southern Railway, at Birmingham, Ala., has been appointed superintendent of the St. Louis-Louisville lines, succeeding C. C. Coffee, transferred, as noted under Engineering & Rolling Stock Officers. W. B. Cook suceeds Mr. Brown, with office at Birmingham.

E. E. Shackford, superintendent of Morgan's Louisiana & Texas Railroad & Steamship Company at Lafayette, Ind., has had his jurisdiction extended to include Mississippi terminals, the office of superintendent of Mississippi terminals having been abolished. J. McGuire, superintendent of terminals at New Orleans, La., has been appointed an assistant superintendent, with office at New Orleans.

Traffic Officers.

For officers of the Wells Fargo & Co. express, see an item in traffic news.

J. H. Corcoran has been appointed traveling passenger agent of the Grand Trunk, with office at Moncton, N. B.

C. E. Stailey has been appointed a traveling freight agent of the Illinois Central, with office at Little Rock, Ark.

R. B. Robertson has been appointed a general agent of the Denver & Rio Grande, with office at Milwaukee, Wis.

R. C. Smith has been appointed commercial agent of the Gulf, Colorado & Santa Fe, with office in New York City.

L. L. Maxey has been appointed assistant general freight and passenger agent of the Midland Valley, with office at Wichita, Kan.

E. M. Kehoe has been appointed a commercial agent of the Missouri Pacific and St. Louis Iron Mountain & Southern, with office at Rock Island, Ill.

L. A. Patterson has been appointed commercial agent of the Missouri & North Arkansas, and J. G. Smith has been appointed traveling freight agent, both with offices at Kansas City, Mo.

Frank Groesbeck, formerly connected with the passenger department of the Denver & Rio Grande at Salt Lake City, Utah, has been appointed traveling freight agent, covering the lines in Utah.

W. E. Fessenden, formerly traveling freight agent of the Rock Island Lines in southern California, has been appointed commercial agent of the St. Louis & San Francisco, with office at Los Angeles, Cal.

I. W. Dudley, general agent of the White Pass & Yukon route at Seattle, Wash., has been appointed commercial agent of the Chesapeake & Ohio and agent of the Blue Ridge Despatch, with headquarters at Seattle, Wash.

C. E. Emerson has been appointed a traveling freight agent of the San Pedro, Los Angeles & Salt Lake, with office at Los Angeles, Cal., succeeding George V. Thompson, granted an indefinite leave of absence on account of ill health.

R. B. Vandergrift, city passenger agent of the Atchison, Topeka & Santa Fe at Philadelphia, Pa., has been appointed traveling passenger agent, with office at Philadelphia, succeeding Otto Faas. Walter Jones succeeds Mr. Vandergrift.

W. V. Pittman, chief clerk to the assistant general freight agent of the Missouri, Kansas & Texas at Houston, Tex., has been appointed contracting freight agent, with office at Houston, succeeding H. C. Moran, resigned to go to another company.

The office of the traveling freight agent of the Lake Erie & Western, at Boston, Mass., has been abolished, and all correspondence should be addressed to E. P. Gardner, commercial agent, New York Central Fast Freight Lines, Boston, Mass.

F. L. Jones, assistant city ticket agent of the Chicago, Rock Island & Pacific at Ft. Worth, Tex., has been appointed traveling passenger agent at Ft. Worth, succeeding Joseph Gittings, transferred to the office of the general passenger agent at Ft. Worth.

John W. Wood has been appointed traveling freight agent of the Norfolk & Western, with office at Birmingham, Ala.; W. T. Cooper has been appointed traveling freight agent, at Atlanta, Ga., and the title of J. S. Hoffman, contracting freight agent, at Atlanta, has been changed to commercial agent.

Otis Mouser, traffic manager of the Interstate Railroad, has resigned, and his office has been abolished. C. L. Nash, auditor, has been appointed general freight and passenger agent, with office at Big Stone Gap, Va., succeeding W. A. Johnson, resigned. All claims will hereafter be handled by the auditor instead of the superintendent.

P. J. Brady, traveling passenger agent of the Union Pacific at Cincinnati, Ohio, has been appointed assistant manager of the North-Western-Union Pacific tours department, with office at Los Angeles, Cal. As has been announced in these columns, E. Z. Giblon has been appointed traveling passenger agent at Cincinnati, succeeding Mr. Brady.

J. A. Pride, assistant general freight agent of the Seaboard Air Line, at Atlanta, Ga., has been appointed general industrial agent, with office at Norfolk, Va., succeeding J. W. White, resigned to go to another company. H. M. Boykin, division freight agent, at Richmond, has been appointed assistant general freight agent, with office at Richmond. S. P. Stringfellow, commercial agent at Richmond, succeeds Mr. Pride, and G. H. Parater, succeeds Mr. Stringfellow.

Engineering and Rolling Stock Officers.

William Sharp has been appointed general car inspector of Chicago, Burlington & Quincy.

F. D. Avery has been appointed assistant engineer of the Buffalo & Western division of the New York Central & Hudson River, with office at Buffalo, N. Y.

A. A. McGregor has been appointed assistant master mechanic of the Louisville & Nashville, with headquarters at Evansville, Ind., succeeding J. B. Huff, deceased.

John Walker has been appointed resident engineer on the Northern division of the Grand Trunk, with office at Allandale, Ont., succeeding H. W. McAll, resigned.

William E. Rockfellow, general car foreman of the New York Central & Hudson River, has been appointed superintendent of the car department of the St. Lawrence and Ontario divisions, with office at Oswego, N. Y.

H. R. Clark, formerly assistant engineer of the Chicago, Burlington & Quincy, on construction work in southern Illinois, has been appointed roadmaster on the Aurora division, with office at Sterling, Ill., succeeding P. E. Erickson.

F. A. Linderman, supervisor of boilers of the New York Central & Hudson River, at West Albany, N. Y., has been appointed district superintendent of motive power of the Ontario and St. Lawrence divisions, with office at Oswego, succeeding J. O. Bradeen, resigned. George Usherwood succeeds Mr. Linderman, with office at West Albany.

G. W. French, master mechanic of the Missouri Pacific, with office at Ferriday, La., has been transferred to Paragould, Ark., as master mechanic, succeeding R. H. Lanham, who has been appointed master mechanic, with headquarters at Poplar Bluff, Mo. W. A. Curley, foreman at Poplar Bluff, Mo., has been appointed master mechanic, with office at Ferriday, La., in place of G. W. French.

D. W. Lum, chief engineer maintenance of way and structures of the Southern Railway and the Northern Alabama Railroad, at his own request has retired from service, effective September 1. B. Herman, principal assistant engineer, has been appointed acting chief engineer maintenance of way and structures, with office at Washington, D. C. T. H. Gatlin, engineer maintenance of way, Middle district, with office at Knoxville, Tenn., has been appointed assistant chief engineer maintenance of way, with office at Washington, and C. C. Coffee, superintendent of the St. Louis-Louisville lines, with office at Louisville, Ky., has been appointed engineer maintenance of way, Middle district, succeeding Mr. Gatlin. R. D. Tobien, assistant engineer, at Washington, has been appointed engineer maintenance of way, with office at Birmingham, Ala.

OBITUARY.

Charles W. Sanford, manager of the Chicago Demurrage Bureau, died on July 21 at Kansas City, Co.

Franklin P. Stoy, who was mayor of Atlantic City, N. J., for a number of years, died on July 22 in a sanitarium at Wernersville, Pa., of paralysis, at the age of 52 years. Mayor Stoy was well known to railway men all over the country, having for many years welcomed to that city those in attendance at the annual conventions of the M. M. and M. C. B. associations.

Joseph Francis Tucker, chairman of the Central Freight Association, died at Chicago, July 25. Mr. Tucker was born in 1835 at Saco, Me. He began railway work in September, 1856, as ticket agent on the Illinois Central. Five years later he was appointed secretary to the president and after acting in this capacity for two years was made general freight agent, which position he held for 10 years. In 1873 he was made general superintendent and two years later master of transportation. In 1876 he was made traffic manager, and in October, 1884, he acted as arbitrator of the Transcontinental Association and of the California, Colorado & Utah Pool. In March, 1885, he became assistant general manager of the Chicago, Milwaukee & St. Paul, and in July, 1890, was made assistant to the president. For one year from 1892 to 1893 he was vice-president and general manager of the Chicago, Fort Madison & Des Moines, now the Chicago, Burlington & Quincy. In May, 1894, he became commissioner of the Chicago & Ohio River Traffic Association, and on April 1, 1896 was made chairman of the Central Traffic Association.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE CHICAGO, BURLINGTON & QUINCY will build 6 switching locomotives at its shops at Aurora, Ill.

THE PAULISTA RAILWAY OF BRAZIL has ordered 2 ten-wheel locomotives from the American Locomotive Company. The dimensions of the cylinders will be 21 in. x 26 in.; diameter of the driving wheels 66 in., and the total weight in working order will be 170,000 lbs.

THE SAN RAFAEL & ATLIXCO RAILWAY, Mexico, has ordered 1 ten-wheel locomotive from the American Locomotive Company. The dimensions of the cylinders will be 17 in. x 20 in.; diameter of driving wheels will be 42 in., and the total weight in working order will be 97,000 lbs.

CAR BUILDING.

THE ILLINOIS CENTRAL is in the market for 2,000 box cars.

THE BOSTON & MAINE is in the market for thirteen 60-ft. postal cars.

THE WABASH RAILROAD is in the market for 1,000 box cars and 200 hopper cars.

THE ATLANTIC COAST LINE is in the market for 900 box cars, 100 flat cars and 8 postal cars.

THE TEXAS TRACTION COMPANY, Dallas, Tex., has ordered 2 trailer cars from the American Car Company.

THE MISSOURI PACIFIC is in the market for 2,000 gondola cars, 500 flat cars, 18 baggage cars and 17 postal cars.

THE ILLINOIS TRACTION SYSTEM, Champaign, Ill., has ordered 12 trailer cars from the St. Louis Car Company.

THE INTERNATIONAL RAILWAY COMPANY, Buffalo, N. Y., has ordered 35 pay-as-you-enter cars from the J. G. Brill Company.

THE MANUFACTURERS' RAILWAY, St. Louis, Mo., is preparing specifications on 100 all-steel 50-ton coal cars, and on 50 steel furniture cars.

THE ST. LOUIS & SAN FRANCISCO, mentioned in the *Railway Age Gazette* of July 7 as being in the market for 19 coaches, 12 chair cars, 3 postal cars and 3 mail and baggage cars, has ordered this equipment from the American Car & Foundry Company.

THE NEW YORK CENTRAL LINES have ordered 6 dining cars from the Barney & Smith Car Company, to be divided between the Lake Shore & Michigan Southern and the New York Central & Hudson River. This company has also ordered five 60-ton well cars from the Standard Steel Car Company.

IRON AND STEEL.

THE BOSTON ELEVATED has ordered 200 tons of bridge material from the Pennsylvania Steel Company.

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 2,500 tons of rails from the Illinois Steel Company.

THE DETROIT, TOLEDO & IRONTON has ordered 1,700 tons of bridge material from the American Bridge Company.

THE CANADIAN PACIFIC has specified that one-tenth of 1 per cent. of metallic titanium shall be used in the 10,000 tons of open hearth rails recently ordered.

THE FIDELITY SECURITIES CORPORATION, Nashville, Tenn., is in the market for about 24 miles of 70-lb. relaying rails with plates, etc., which will stand rigid examination.

GENERAL CONDITIONS IN STEEL.—Orders on the books of the Steel Corporation have increased steadily during the month of July, so even larger earnings are expected this month than for June. The industry is now operating at about 73 per cent. of its capacity. This is all the more remarkable when it is realized that the equipment orders of the railways, usually such a large item, are now far below normal. Some large equipment orders are pending, however, and they will probably be placed within a month. Steel men are confident that the improvement is permanent.

Supply Trade News.

The Isthmian Canal Commission will receive bids until August 4 on creosoted ties, and until August 7 on creosoted piles. Circulars Nos. 640 and 640-A respectively.

The Chicago Pneumatic Tool Company, Chicago, has changed the name of its air compressors, hitherto known as Franklin compressors, to Chicago Pneumatic compressors.

Jason Paige, lately resigned from the Inter Ocean Steel Company, Chicago, has been made contracting engineer for the Pittsburgh Steel Products Company, Pittsburgh, Pa., with office in Chicago.

The McKeen Motor Car Company, Omaha, Neb., has received an order from the Woodstock & Sycamore Traction Company, Sycamore, Ill., for a third 55-ft. motor car. There are now 114 of these cars in service in the United States.

Grip nuts, made by the Grip Nut Company, Chicago, have been specified on the equipment recently ordered by the Atlantic Coast Line, the Pittsburgh and Lake Erie, the Illinois Central, the Erie and the Merchants' Despatch Company, New York.

George E. Molleson, 50 Church street, has been made eastern representative of the Cowles-MacDowell Engineering Company, Chicago. Mr. Molleson will have charge of the sale of that company's steam heating and hot water washout systems in the eastern district.

Charles L. Cordes, for several years chief clerk in the traffic department of the American Steel & Wire Company, Chicago, has been promoted to division freight agent in charge of the Pittsburgh district, succeeding L. H. Korndorff, now in charge of the traffic on the Pacific coast with headquarters at San Francisco, Cal.

The Nova Scotia Car Works, Halifax, N. S., is increasing the capacity of its plant. The improvements to the forge department are nearly completed and the plant is now equipped with 17 oil furnaces. These furnaces are operated with crude oil instead of coal, resulting in increased output as well as decreased cost of operation. The new grey iron foundry is now in operation and the capacity is ample for all the requirements of the plant. The wheel capacity has been almost doubled by the erection of a new building. Most of the new machinery for the steel car plant has arrived and the work of installation is under way. The steel erecting shop will be a steel building, 300 ft. x 100 ft., equipped with electric overhead traveling cranes and electrically driven tools and air tools. The output of the company was recently six cars a day, but this is steadily being increased and it is expected that an output of 12 wooden cars will soon be reached. On October 1 the company will begin to build steel cars, and will have a plant capable of turning out 10 steel cars daily, making a total capacity of 22 cars a day.

The annual report of the American Car & Foundry Company, New York, for the year ended April 30, 1911, shows that the net earnings were $4,234,789, an increase of $145,311 over 1910. The company earned 7.01 per cent. on the common stock, a much better showing than was expected. The year was a very bad one, for the scarcity of orders and the consequent increased competition resulted in a lessening of the profit margin. The company has taken advantage of the comparatively light operations and has made a thorough overhauling of all the plants. The item of $500,000, which has previously been carried in reserve for the purchase of the Wilmington plant has been expended for that purpose, so that property is now owned, free of all incumbrances. The additional all-steel passenger car plant at St. Charles, Mo., has been nearly completed during the year. For this work and for other additions $434,225 of the sum reserved for the construction of and additions to steel car plants was spent. This depletion of this reserve was partly made up by an appropriation of $250,000 from net earnings, so that the reserve is now $1,277,795, as against $1,462,020 in 1910. The regular 7 per cent. dividend was paid on the preferred stock and 2 per cent. was paid on the common stock. The surplus for the year was $784,789, as compared with $1,389,478 in 1910. An appropriation of $750,000 for general overhauling, improvements and maintenance explains this reduction of surplus in 1911. The total surplus as of April 30, 1911, was $24,737,345.

TRADE PUBLICATIONS.

Chicago, Great Western.—This company has published a booklet entitled The Tale of Our Limited, telling of the comforts and up-to-date facilities that may be found on the Great Western Limited.

Car Doors.—The Bullard Car Door Equipment Company, Birmingham, Ala., has published catalog No. 3, illustrating, describing and giving the advantages of its various types of car doors and accessories.

Signals.—The General Railway Signal Company, Rochester, N. Y., in bulletin No. 114-A, describes its selective signaling system, model 3, form B. This bulletin is illustrated and contains a full account of the operation of the system.

Planers.—The Niles-Bement-Pond Company, New York, has published a well illustrated catalog of its large planing machines, including armor plate planers, connecting rod planers, crank planers, plate planers, rotary planers and vertical and horizontal planers.

Northern Pacific.—This company has devoted a small illustrated booklet to the efficiency of its train service in all departments. The various trains and the different classes of cars are briefly but clearly described, and several interesting bits of general information about the line are included.

Water Softeners.—The L. M. Booth Company, New York, has published a catalog of its water softeners, illustrating installations of the various types throughout the country, and telling of the success with which they have met. The chemical regulators are illustrated by diagrams and are fully described.

Grinding Wheels.—The Norton Company, Worcester, Mass., has published a small illustrated catalog of its grinding wheels under the title Safety, as Applied to Grinding Wheels. The descriptions are clear and concise, and the tables and diagrams combine to furnish a very good idea of the construction and advantages of these wheels.

Oxygen and Hydrogen.—The International Oxygen Company, New York, has published a small booklet on the I. O. C. system of generating oxygen and hydrogen for cutting, welding and other purposes. This system is clearly and concisely described, and the merits of the oxygen-hydrogen flame and the oxygen-acetylene flame for autogenous welding and cutting are compared.

Ventilating Fans.—The American Blower Company, Detroit, Mich., has published bulletin No. 315 on its Ventura disc ventilating fans. The bulletin is illustrated and includes tables and diagrams. This fan is reversible, so that it will either exhaust or blow in. The A B C cast iron exhaust fan is described in a separate little booklet, also published by this company. These fans are used principally to exhaust dust, smoke, shavings, etc.

Brake Beams.—The Chicago Railway Equipment Company, Chicago, has published a booklet entitled The Brake Beam, written by C. H. Williams, Jr., New York. It contains a full discussion on the importance of the brake beam, brake cylinder travel, brake beam deflection, and also a history of the development of the brake beam. Several illustrations are included which show some interesting results of tests of solid and trussed brake beams.

Staybolts.—The Flannery Bolt Company, Pittsburgh, Pa., has published a useful booklet on The Breakage of Staybolts. Various causes are pointed out and remedies are outlined. A paper on The Inequality of Expansion in Locomotive Boilers and the Possibility of Eliminating the Bad Effects Therefrom, by Donald R. MacBain, and a Theoretical Discussion on the Breakage of Staybolts in Locomotive Boilers, by W. L. Turner and B. E. T. Stafford, are included.

Steel.—William Jessop & Sons, Inc., New York, has published an interesting little booklet on its different kinds of steel and the purposes to which each is best suited. Special attention is devoted to the Ark high speed treated tool holder bits. Their advantages are outlined and their prices given. Full directions for working are also included. There is also a useful table giving the various temper colors of carbon steel commonly accepted as standard. The booklet includes other interesting tables and data.

Railway Construction.

New Incorporations, Surveys, Etc.

Algoma Central & Hudson Bay.—According to press reports, a contract has been let to J. D. McArthur, Winnipeg, Man., and T. J. Kennedy, for the completion of the Algoma Central & Hudson Bay. The work will include grading and ballasting 208 miles, from Sault Ste. Marie, Ont., to the Grand Trunk Pacific. The work will cost about $3,000,000. The contract calls for completion of the work within two years. (June 30, p. 1713).

Atchison, Topeka & Santa Fe Coast Lines.—According to press reports, this company is receiving bids for the construction of a branch line from Blythe Junction, Cal., to a point near Blythe.

Atlantic, Waycross & Northern.—See this company in Railway Financial News.

Aroostook Valley.—See St. John & Quebec.

Canadian Northern Pacific.—An officer writes that this road will run from Vancouver, B. C., northeast via the valleys of the Thompson, North Thompson and Fraser rivers to the boundary line of British Columbia at Yellow Head Pass, about 500 miles. Construction work and track laying have already been started. The Northern Construction Company, Winnipeg, Man., has a contract for part of the work. The work will be very heavy. The maximum grade will be 0.4 per cent., compensated; and maximum curvature, 8 deg. Sir William Mackenzie, president, Toronto, Ont., and T. H. White, chief engineer.

Canadian Northern.—See Canadian Northern Pacific.

Central Idaho.—An officer writes that this road will run from Richfield, Idaho, northwesterly 34 miles, thence west 18 miles, and thence southwest six miles, to Taft, in all 58 miles. The road is now under construction, but no track is laid. The Utah Construction Company, Ogden, Utah, has the contract. Maximum grades will be 1 per cent., and maximum curvature 3 deg. The principal commodities the road will carry are agricultural products and livestock. W. H. Bancroft, vice-president and general manager of the Oregon Short Line is president, and Carl Stradley, chief enginer, both of Salt Lake City, Utah.

Chicago, Rock Island & Pacific.—All equipment necessary in the work of constructing the St. Paul & Kansas City Short Line from Allerton, north to Carlisle, Iowa, is on the ground. The work is well under way, and will be pushed to completion. The survey has been divided into eight sections of approximately eight miles each, and two gangs have been put to work on each section. The new line in connection with the St. Paul & Des Moines will complete an important through line for the Rock Island between St. Paul, Minn., Minneapolis, and the northwest, and Kansas City, Mo., and the company's line to California and the gulf. It will be the shortest line between Minneapolis, St. Paul and Kansas City. (April 14, p. 924.)

Colusa & Hamilton.—Incorporated at San Francisco, Cal., with $2,000,000 capital, to build from Harrington, Cal., north to Hamilton, about 60 miles. The company was incorporated by officials of the Southern Pacific.

Corning, Keuka Lake & Ontario.—This company has applied to the New York Public Service Commission, Second district, for permission to build from Corning, Steuben county, N. Y., to Sodus bay, Wayne county, on lake Ontario, about 90 miles.

Idaho Roads.—The Idaho Continental Mining Company will build a line, it is said, from Porthill, Bonner county, Idaho, into its mining district, about 22 miles.

Intercolonial Railway.—See St. John & Quebec.

Meridian & Deep Water.—An officer writes that construction work is now under way on the line from Meridian, Miss., to the beginning of deep water on the Tombigbee river in Alabama, 47 miles. Bids are now being asked for track laying, bridges, etc. The road will have a grade of 1 per cent. About 800,000 cu. yds. of earth will have to be moved. The principal commodities the road will carry are cotton, coal and vegetables. S. A. Neville, president, and W. C. Stowall, chief engineer.

Missouri, Kansas & Texas.—Preliminary surveys have been

started, it is said, for a line from Parsons, Kan., to Wichita, about 110 miles.

MOUNTAIN QUARRIES CO. LINES.—An officer writes that contracts have been let and work is now under way building from Auburn, Placer county, Cal., to Cool, Eldorado county, eight miles. There will be a reinforced concrete bridge, to have three 140-ft. spans. Morris Kind, president, San Francisco. (May 26, p. 1223.)

NATIONAL RAILWAYS OF MEXICO.—Construction work will soon be begun on a branch line from Allende, Mex., to Las Vacas, about 75 miles.

NAVAJO SOUTHERN.—This company has been organized at Phoenix, Ariz., and has filed maps for the construction of a line from Holbrook to the south line of Navajo county, about 70 miles. F. H. Bowen, president, and W. H. Clark, secretary, Phoenix.

NEW YORK, ONTARIO & WESTERN.—An officer writes that the company is double-tracking the line between Cadosia, N. Y., and Poyntelle, Pa. The MacDonald Construction Company, New York, has a contract for part of this work, and the balance is being done by the company's men. This work includes a double-track steel bridge over the Erie Railroad tracks on the Delaware river at Hancock, N. Y., the estimated cost of which is $150,000. The Pennsylvania Steel Company has the contract for the steel work on this bridge, and the MacDonald Construction Company has the contract for the concrete work.

OREGON SHORT LINE.—See Central Idaho.

OWENS RIVER VALLEY (Electric).—An officer writes that grading is now under way on a line from Laws siding, Inyo county, Cal., on the Southern Pacific, south to Bishop, about five miles. The track laying, bridge work, etc., is to be done by the company's men. A grading contract has been let to McLean & Francisco, Bishop, and a contract has been let for the ties and timber. The line is being built to carry agricultural and dairy products, fruits and livestock. The company has not yet decided whether electricity will be used for the motive power or gasolene electric cars. Harry Shaw, president, and R. Spalding, chief engineer, Bishop.

PACIFIC ELECTRIC.—This company proposes to build, it is said, from Upland, Cal., west to San Bernardino, 20 miles, and from Riverside northeast to San Bernardino, 10 miles; in all, 30 miles.

SAN ANTONIO & MEXICAN.—See Texas Roads.

ST. JOHN & QUEBEC.—An officer of the Aroostook Valley writes that a line is to be built by the St. John & Quebec from St. John, N. B., northwest via Fredricton, Woodstock, Centerville and Andover to Grand Falls, where connection is to be made with the National Transcontinental (Grand Trunk Pacific), 210 miles. The new line is to be built under the charter of the St. John & Quebec, of which the Aroostook Valley is a subsidiary, forming part of a through line in the state of Maine. It is expected that work on the new line will be started this year. The average cost per mile is $35,000. When completed, the line will be operated by the Intercolonial Railway. A. R. Gould, Presque Isle, Me., is president of both the St. John & Quebec and the Aroostook Valley.

ST. PAUL & DES MOINES.—See Chicago, Rock Island & Pacific.

ST. PAUL, & KANSAS CITY SHORT LINE.—See Chicago, Rock Island & Pacific.

SOUTHERN PACIFIC.—According to press reports, contracts have been let and construction work commenced by the Utah Construction Company on a branch line from Tulasco, Nev., to the new town site of Metropolis, about nine miles.

See Colusa & Hamilton.

SOUTHERN PACIFIC OF MEXICO.—The section between the Santiago river, Mex., and the city of Tepic is expected to be finished in the latter part of October, and will probably be opened to traffic in November. Track is now laid to within 20 miles of Tepic, and the grade is nearly finished to that city. This company holds a concession to extend its line from Orendain to Mexico City via Guadalajara, and as soon as arrangements and surveys can be made construction work will begin.

TEXAS ROADS.—The San Antonio & Mexican Construction Company recently formed with $500,000 capital, to build from San Antonio, Tex., to some point on the Rio Grande, about 325 miles, has entered into a contract with C. S. Young, Brownsville, to make the preliminary surveys.

TWIN MOUNTAIN & POTOMAC.—An officer writes that this road will run from Keyser, W. Va., south via Arnolds Gap to Burlington, and thence to Twin Mountain, about 26 miles. No track has been laid, but the prospects of building the line are good. Contracts will be let about August 15. The work will be light. The maximum grade will be about 4 per cent., and the maximum curvature about 30 deg. There will be one 100-ft. steel bridge. The principal commodities the road will carry are fruit, lumber and coal. J. Clyde Lewis, chief engineer, Grafton, W. Va. (June 23, p. 1675.)

UTAH ROADS.—A company has been incorporated in Utah, with $150,000 capital, to build from a point on the Denver & Rio Grande, at Thompson, Grand county, Utah, into coal country, about eight miles. Construction work will be started shortly and the line will later be extended. The officers of the company are as follows: B. F. Bauer, president; H. T. Ballard, vice-president; C. L. Crockwell, second vice-president; William Darke, secretary, and W. S. McCarty, treasurer, all of Salt Lake City.

WENATCHEE VALLEY RAILWAY & POWER.—This company will build a line, it is said, from Wenatchee, Wash., northwest to Leavenworth, 20 miles. E. J. Felt, Tacoma, is interested.

WICHITA FALLS ROUTE.—An officer writes that the Wichita Falls & Northwestern will build an extension from Hammon, Okla., north via Leedy, Train, Vici and Woodward to Supply, 84 miles. Construction work is already under way, but no track has been laid as yet. The work will be heavy, about 50,000 cu. yds. of earth per mile. The maximum grade will be 0.75 per cent. and the maximum curvature 3 degrees. The road will carry grain, cotton, livestock, etc. J. A. Kemp, president, and R. A. Thompson, chief engineer, both of Wichita Falls, Tex. (June 9, p. 1135).

WICHITA FALLS & NORTHWESTERN.—See Wichita Falls Route.

RAILWAY STRUCTURES.

AMARILLO, TEX.—See Cleburne, Tex.

AUBURN, CAL.—See Mountain Quarries Company Lines, under Railway Construction.

CANADIAN, TEX.—See Cleburne, Tex.

CLEBURNE, TEX.—According to press reports, plans have been approved for improvements on the Texas lines of the Atchison, Topeka, & Santa Fe, as follows: Brick power house and power plant at Cleburne, to cost $27,000; water treating plant at Canadian, $7,000; 16-stall brick engine house at Galveston, $48,000 (July 14, p. 106); water treating plant at Amarillo, $8,200, and street improvements, $2,200; improving water facilities at Houston, $7,000; and yard improvements at Temple, $5,800.

FRESNO, CAL.—The Southern Pacific has commenced to rebuild its depot, which was recently damaged by fire.

GALVESTON, TEX.—See Cleburne, Tex.

GLENDIVE, MONT.—The Northern Pacific, according to press reports, has let contract to the Pittsburgh Construction Company for the completion of the railway bridge across the Yellowstone river above Glendive. The concrete work was finished last fall, and the contract calls for completion within 40 days after July 2. This bridge is on the Glendive-Sidney branch, now under construction. (See construction item under Northern Pacific in issue of October 28, 1910, p. 810.)

GRAFTON, W. VA.—The Baltimore & Ohio has awarded the contract for building a machine shop and supply building at this place.

HALIFAX, N. S.—The time for receiving bids for the construction of a reinforced concrete pier and sheds at the deepwater terminus of the Intercolonial Railway at Halifax has been extended from July 20 to July 31, and bids are wanted by August 1 for freight sheds on the quay wall at Halifax. Address L. K. Jones, secretary, Department of Railways & Canals, Ottawa, Ont. (June 30, p. 1715.)

Hancock, N. Y.—See New York, Ontario & Western under Railway Construction.

Houston, Tex.—See Cleburne, Tex.

Little Rock, Ark.—The Chicago, Rock Island & Pacific has awarded the contract for building a freight house to cost about $100,000.

Moline, Ill.—The Chicago, Burlington & Quincy has prepared plans for a one story, brick and concrete passenger station, 28 ft. x 185 ft. The building will contain a ticket office, waiting room, smoking room, women's rest room and baggage room and will have a canopy over the platform 15 ft. x 280 ft. The estimated cost will be $40,000.

Montclair, N. J.—Negotiations are almost completed for the construction of a new freight and passenger station for the Delaware, Lackawanna & Western at Montclair, and for the elimination of grade crossings at that place.

North Ontario, Cal.—See Upland Junction, Cal.

North Yakima, Wash.—The Oregon-Washington Railroad & Navigation has acquired a site at North Yakima on which to build repair shops.

Oelwein, Ia.—See Stockton, Ill.

Oklahoma City, Okla.—According to press reports, funds are being raised for the purchase of terminal facilities at Oklahoma City for an extension of the Missouri, Oklahoma & Gulf. It is believed that the $75,000 which is needed will be secured shortly.

Providence, Pa.—An officer of the New York, Ontario & Western, writes that the company is rebuilding two bridges over the Delaware & Hudson tracks between Dickson, Pa., and Providence, at an estimated cost of $80,000. The American Bridge Company has the contract for the steel work, and the MacDonald Construction Company, New York, has the contract for the masonry.

St. Joseph, Mo.—The Chicago, Burlington & Quincy is taking bids on a brick and steel freight house, 40 x 600 ft., with 11-ft. platform on the track side and flat gravel roof with 12-ft. overhanging eaves on both sides.

Sault Ste. Marie, Ont.—Bids for the construction of a $65,000 depot are called for, it is said, by the Algoma Central & Hudson Bay.

Savannah, Ga.—The improvements at Hutchinson Island, now under way, referred to in our issue of July 21, page 159, are being carried out by the Seaboard Air Line.

Sioux Falls, S. D.—The Chicago, Milwaukee & St. Paul will build a freight house at Sioux Falls.

Stockton, Ill.—The Chicago Great Western has awarded the contract for building a one-story, six-stall roundhouse of brick construction, to cost about $60,000. This company has also awarded the contract for improvements and additions to the shops at Oelwein, Ia. to cost about $100,000.

Taylor, Tex.—The Missouri, Kansas & Texas has prepared plans for a new passenger station, 184 ft. x 46 ft., mission style, brick and stone construction, inside finish of white enameled brick, roof to project over eaves to form cover for platform, to cost about $40,000. Construction will begin in a short time.

Temple, Tex.—The passenger station for the Missouri, Kansas & Texas at Temple, will be erected, it is said, at a cost of $40,000.

See Cleburne, Tex.

Upland Junction, Cal.—The Ontario & San Antonio Heights (electric) has awarded contracts to Herbert Cleveland, Ontario, Cal., to build depots at Upland Junction, North Ontario and at Mountain avenue.

Vidalia, Ga.—A union depot will be erected at Vidalia by the Georgia & Florida. It will also be used by the Seaboard Air Line and the Macon, Dublin & Savannah. G. Lloyd Preacher is the architect. The building will cost about $12,000, and will be of stone and brick. Bids will be opened as soon as the plans are completed.

Railway Financial News.

Atlantic, Waycross & Northern.—The stockholders have voted to authorize an issue of $4,800,000 bonds and $1,500,000 stock, to build the line projected from St. Mary's, Ga., to Atlanta, about 222 miles. There is now in operation about 10 miles.

Boonville, St. Louis & Southern.—This company has sold to Spitzer, Rorick & Co., Toledo, Ohio, $500,000 first mortgage 5 per cent. bonds of August 1, 1911-1951. The bonds are guaranteed principal and interest by the Missouri Pacific, which as heretofore announced has bought the Boonville, St. Louis & Southern. Of the proceeds of these bonds, $400,000 will be used to pay at maturity on August 1, 1911, $400,000 first mortgage 6 per cent. bonds.

Buffalo & Susquehanna.—The *Commercial & Financial Chronicle* quotes H. I. Miller, receiver, as saying that the $255,000 Buffalo & Susquehanna Railroad receiver's certificates will be paid off at maturity on August 1, and that it will not be necessary to reissue any part of them.

Chicago & Eastern Illinois.—In addition to the $1,284,000 bonds to be issued by the Evansville & Terre Haute, to be used to redeem the capital stock of that company, the Chicago & Eastern Illinois is to increase its capital stock from $25,000,000 to $30,000,000, the additional $5,000,000 stock being preferred, which is to be issued to pay for the property of the Evansville & Terre Haute and the Evansville Belt, and to pay for the stock of the Evansville & Indianapolis.

See also Evansville & Terre Haute.

O. S. Lyford, vice-president, has been elected a director, succeeding Frank Trumbull, resigned.

Cincinnati, Georgetown & Portsmouth.—It is said that control of this company has been bought by St. Louis bankers.

Columbus & Southern.—It is said that New York bankers have been given an option on the controlling stock of this company.

Connecting Railway (Philadelphia).—This company has made a mortgage securing $15,000,000 bonds. The company operates 36 miles of road in and around Philadelphia, and its $3,613,650 stock is owned by the Pennsylvania Railroad, which operates the road under lease.

Evansville & Terre Haute.—Stockholders of this company under the merger plan with the Chicago & Eastern Illinois are to receive 10/12 par value of C. & E. I. preferred stock in exchange for par, par value of E. & T. H. preferred, or may receive at their own option 4 per cent. refunding bonds of the E. & T. H. par for par with their preferred stock.

Grand Trunk.—This company has obtained an injunction against the New York, New Haven & Hartford preventing the New Haven from building a freight house across the proposed right-of-way of the Southern New England, which is the Grand Trunk subsidiary, which is to build into Providence, R. I.

Lake Superior & Ishpeming.—The Cleveland-Cliffs Iron Company, Cleveland, Ohio, has offered to its stockholders $994,000 first mortgage 6 per cent. bonds dated February 1, 1911, payable $70,000 yearly from 1912 to 1931. The road runs from Presque Isle Harbor, Mich., to Jopling, and to iron mines in the Marquette district; in all 31 miles of main line and about 23 miles of branches and sidings.

New York, New Haven & Hartford.—See Grand Trunk.

New York, New Haven & Hartford.—This company has sold to bankers $7,200,000 bonds of its subsidiary, the New York, Westchester & Boston. The bonds will bear 4½ per cent. They are a part of a total authorized issue of $20,000,000 first mortgage bonds, the bulk of which has been in the New Haven treasury for several years. The whole issue is guaranteed by the New Haven, which owns $4,924,800 of the $5,000,000 capital stock of the subsidiary.

Quebec Oriental.—It is announced that a call of $10 per share is made on the 1,250 shares ($10 paid), due August 14, 1911.